

## **NONCONVENTIONAL SOIL ADDITIVES: PRODUCTS, COMPANIES, INGREDIENTS, AND CLAIMS**

*Prepared as an activity of NCR-103 Committee on  
Nontraditional Soil Amendments and Growth Stimulants\*\**

By committee definition, a nonconventional additive is 1) any non-fertilizer material applied to soil or plants claiming to improve physical, chemical or other characteristics of the soil or to improve crop production, vigor, growth or quality; or 2) a guaranteed fertilizer material which is used in an unconventional manner such as very small amounts. A nonconventional program is one where traditional or nontraditional materials are used in a unconventional manner.

Soil and plant additives may be classified under a number of different schemes based on different criteria such as intended use or function, method of application, quantity to be applied, or origin of the material. The following system adopted by the NCR-103 committee includes six primary categories: 1) soil conditioners; 2) mineral nutrient sources used in a nonconventional manner (i.e., low rate); 3) wetting agents and surfactants; 4) biological inoculants and activators; 5) plant stimulants and growth regulators; and 6) nonconventional fertility concepts or programs. Some products by their nature or claims may fall into more than one category.

The materials included in this report are believed by the committee to be in one of the above categories. All descriptions, active ingredients or claims have been taken from labels, advertising, materials, or research reports. The use of product trade names is only for educational purposes and clarity and is not to be construed as product approval or disapproval, implied or otherwise, by the committee, its individual members, or the institutions they represent. Inclusion or exclusion from this listing constitutes neither endorsement nor condemnation.

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**2XL** (4-16-4-25/6-12-6-26)

Company: LTL Marketing, Box 167, Castlewood, SD 57223

Ingredients: Fortified fertilizer containing traces and micronutrients with selected inoculating bacteria, humic acid, calcinated clay, and graphite

Claims: Creates a healthy micro-environment to encourage early seed germination and healthy, strong seedlings that resist pests and diseases

Remarks: Used for seed treatments on several crops

**ACA**

Company: United Agri Products, 419 18th St., P.O. Box 1286, Greeley, CO 80631

Ingredients: Ammonium zinc acetate; with guaranteed analysis of 15% N and 17% Zn by weight

Claims: May function as a plant growth regulator; results in stronger root system; at one time suggested to function as a nitrification inhibitor

Remarks: Added with anhydrous NH<sub>3</sub> or with nitrogen solutions starter fertilizers. Recommended rate is 4.5 pt/ton anhydrous, 0.35 lb ACA/100 lb N as N solutions, or 0.33 pt/A with starter or 0.67 pt/A broadcast

Known Research: Anderson (undated); Christensen and Bricker (1976); Kapusta (1978); Randall (1979); Thasanasongchan (1981); Whitney and Lamond (1988); Whitney et al. (1988); Hergert (1989); Oplinger (1990); Cattanaach (1992); Warncke and Gnagey (1992); Watkins et al. (1994); Liu et al. (1994, 1995, 1996); Carlson and Genrich (1994); Genrich and Carlson (1994); Gerwing et al. (1994; 1995); Kmiecik (1995); Kelling et al. (1997a); Ritchie et al. (1997); Bly et al. (1997a); Kelling and Speth (1999, 2001); NCR Committee (1999)

**ACA Plus**

Company: United Agri Products, 419 18th St., P.O. Box 1286, Greeley, CO 80631

Ingredients: 7.5-0-0 with 8.5% Zn; is a very soluble form of ACA

Claims: Same as ACA

Known Research: Henninger (1999, 2000); Infante-Casella et al. (2002)

**Acadian Seaplants**

Company: Acadian Seaplants Ltd., Darmouth, Nova Scotia, Canada, B3BN 1XB

Ingredients: 0.3-0.3-4 fertilizer derived from *Ascophyllum nodosum* seaweed

Claims: Increases yield and quality along with improving efficiency of overall fertilizer program; used to supplement existing fertilizer programs and can be applied by foliar spray or through irrigation systems

**Accelerator**

Company: Enzy-Tech Inc., P.O. Box 1175, Fresno, CA 93715

Ingredients: Derived from sulfates of calcium, cobalt, copper, iron, manganese, and zinc; magnesium oxide, sodium borate, molybdate

Claims: Better yields, speeds up natural biological processes

Known Research: Paul and Lindgren (1993)

**Achieve**

Company: B&S Research Inc., 4345 Hwy 21, Embarrass, MN 55732

Ingredients: 0-2-3 liquid fertilizer

**ACLF Liquid Fertilizers**

Company: Terra Max, Inc., 16905 Aberdeen St. NE, Ham Lake, MN 55304  
 Ingredients: Low salt flavonal chelated macro, secondary, and micronutrients.

**ACTIMAX**

Company: Farm Guard Products, 6130 2nd St. NW, Albuquerque, NM 87107  
 Ingredients: Humate materials  
 Claims: Sulfur and micronutrient source, nutrient release, increased bacterial feeding  
 Remarks: Purported to be solubilized Clodbuster

**ACTISUL**

Company: Farm Guard Products, 6130 Second St. NW, Albuquerque, NM 87107  
 Ingredients: Sulfur  
 Claims: Sulfur and micronutrient source, nutrient release, increased bacterial feeding

**ACTIVAL**

Company: Agronics Inc., 701 Madison St., N.E., Albuquerque, NM 87110  
 Ingredients: 5-0-17 or 10-15-10 liquid fertilizers with organic colloid dispersing agent  
 Remarks: Apparently this company is a subdivision of Farm Guard Products, as they at one time had the same address and list Clod Buster as their primary product

**ADDAMAX**

Company: Floratine Products Group, Memphis, TN  
 Ingredients: Complete fertilizers (4-12-4) with micronutrients and 1 to 4.55% Mo  
 Remarks: Intended to supply Mo as a planter box treatment in supplement to standard fertilizer program.

**ADVANTAGE**

Company: Wabash Soil & Plant Inc., 12015 SR118, Van Nert, OH 45891  
 Claims: Reduces surface water tension for better penetration and uniform coverage

**Aerata**

Company: Nature 2000 Inc., Creekside Center, 120 Portage St., Lodi, WI 53555  
 Ingredients: A time-released oxygen product  
 Claims: Breaks down solids, crusts, and sludges in manure pits and lagoons; reduces odors

**AFB** (See Kozgro's AFB)**Ag 10-12 Soil Conditioner**

Company: Ag Nation Products, Inc., P.O. Box 1614, E. Canton, OH 44730  
 Ingredients: Alkoxy polyoxyethylene sulfate, 56%; dipentene, 2%; isopropanol, 4%; inert ingredients, 38%  
 Claims: Makes soil more porous; increases plant emergence and soil friability  
 Remarks: Most effective when applied at 12 oz/A  
 Known Research: Baker (1981); Hunt and Baker (1981); Blumberg (1981)

**AGGrand Natural Organic Fertilizer**

Company: Amsoil Inc., Amsoil Building, Superior, WI 54880  
 Ingredients: 4-1-1 fertilizer derived from fish and kelp

**AGGreene Natural Organic Fertilizer**

Company: Amsoil Inc., Amsoil Building, Superior, WI 54880  
 Ingredients: 2-1-1 fertilizer derived from fish and kelp

**AgGroSyn**

Company: Catalyst Technology Inc., 10545 W. Donges Ct., Milwaukee, WI 53224  
 Ingredients: A 10-7-7 fertilizer in a “unique aqueous base containing naturally occurring substances” that attract vital nutrients from the air and soil to the cell  
 Claims: Increases microbial activity, creates balanced fertility; increases soil organic matter and humus; reduces fertilizer and herbicide needs  
 Remarks: Use at 0.2 gal/A  
 Known Research: Kussow (1985); Kelling et al. (1988a)

**Agrialife** (Possible alternative names: Genesis II, Agrovita, Planterra, Terrasalvo, Agrispon, Nitro/Max, Reward, Respond, Soil Inoculant)

Company: AN-Vent, Inc., 2548 Royal La., P.O. Box 29191, Dallas, TX 75229  
 Ingredients: Blue-green algae, filamentous fungi, cytokinins  
 Claims: Supply N, increase organic matter content, improve soil conditions and yields  
 Remarks: Asymbiotic N fixation simulator  
 Known Research: Brookston (1976); Kelling et al. (1978); Lilly (1978)

**Agri-II**

Company: Agri-World Products, Inc., P.O. Box 208, Rockford, OH 45882  
 Ingredients: Ammonium laureth sulfate, 56%; alpha pinene, 3%; methanol, 3%  
 Claims: “Soil conditioner”  
 Remarks: An aid to improved downward water movement  
 Known Research: Hunt and Baker (1981); Murdock (undated)

**Agri-Aid**

Company: Mosinee Paper Corp., Mosinee, WI 54455  
 Ingredients: CaCO<sub>3</sub>, 30-40%; small wood fibers, 40-50%; other, 10-15%  
 Claims: Corrects soil acidity, soil conditioner, higher yields

**Agri-blend** (See Aqua-10)

Known Research: Edmeades (2002)

**Agriblend Plus**

Company: American Soil Technologies, Inc., 122224 Montague St., Pacoima, CA 91331  
 Ingredients: Polymers  
 Claims: Creates a semi-permeable barrier in soil; increases crop yields; increases quality of crop; reduces leaching, evaporation, irrigation, and compaction  
 Remarks: Application rates based on soil texture (20-35 lb/A)  
 Known Research: Clark and Carpenter (2001)

**Agri-Carb**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Combination of liquid carbon sources  
 Remarks: Acts as a food source for soil life, serves as an “anchor” for N products, and is a chelating agent

**Agri-Fol '21'**

Company: International Production of Energy, Inc., 8401 State Rd. #61, Galion, OH 44833  
 Ingredients: 24-0-3 derived from  $\text{NH}_4\text{NO}_3$ ,  $\text{KNO}_3$  and urea plus micronutrients (1% Fe, 0.2% Mg, 2% Mn, 0.08% Cu, 0.02% B, and 0.05% Zn)  
 Claims: Increases yields 30-300%, lessens need for conventional soil applied fertilizer by 66%; shortens growing time; stimulates root growth  
 Remarks: For corn, apply at 3 to 3.5 lb/A

**Agri-gains**

Ingredients: 9-18-9-1S fertilizer

**Agri-Gro**

Company: Agri-Gro Marketing, HC 4 Box 123, Doniphan, MO 63935  
 Claims: Increases nutrient availability, sugar content, root mass yields, humus; decreases crusting, alkalinity, salt build-up and chemical carryover  
 Remarks: A biological soil supplement containing dormant N-fixing bacteria; developed by Dr. Joe C. Spruill

**Agrihope**

Company: Nippon Shokubai Co., Japan  
 Claims: Improves soil water holding capacity  
 Remarks: Synthetic polymer

**Agrikelp**

Company: The Continental Shelf, Pleasant Dr., Lochmere, NH 03252  
 Ingredients: Made of seaweed extract from Australian bull kelp  
 Claims: Healthier roots and plants; increases ability to withstand stress; stimulates nutrient uptake; increases yields  
 Remarks: To be used as a fertilizer supplement

**AgriKey**

Company: MicroKey Sciences, Inc., 9700 Richmond Ave., Suite 140, Houston, TX 77041  
 Remarks: Apparently took over marketing of Fertilaid and also have other tradenames, including Amazon Green and Concern

**Agri-Plus**

Company: Western Sunburst, Inc., 906 N. Carpenter Rd., Sante Modesto, CA 95351  
 Ingredients: A 5-0-0 leonardite mix

**Agri-SC**

Company: Four Star Agriculture Services Inc., 110 1/2 E. Wabash Street, Bluffton, IN 46714  
 Ingredients: Ammonium laureth sulfate, 48%; inert, 52%  
 Claims: More porous soil, easier tillage; eliminates wet spots, reduces runoff; increase till effectiveness  
 Known Research: Vitosh et al. (1978); Fitch et al. (1989); Kucera et al. (undated)

**AgriSerum**

Company: Farmers Manufacturing Company, Dorsey, IL 62021

Ingredients: "Organic serum of basic life sheltering and life promoting values"

Claims: Larger root system, less drought problems, wakes up nutrients, earlier germination

Remarks: Forms seed coating of beneficial bacteria and materials which are nutritional to bacteria in the soil

Known Research: Crookston (1976, 1977b); Powell and Grundahl, cited in Overdahl (1976); Robertson, cited in Overdahl (1976); Murdock et al., cited in Overdahl (1976); Lessman and McCutchen (1980); Killorn (1991)

**AgriSpun** (See Agralife; also marketed as Nitro/Max, Reward, and Respond)

Company: J and J Agri-Products and Services, Inc., 220 S. 2nd Street, Dillsburg, PA 17019

Ingredients: Trace minerals (not as plant food), 1%; algae, bacteria, fungi, 0.01%

Claims: Accelerates nitrogen cycle; better roots; better soil moisture regime; faster decomposition of crop residues; builds humus; better germination

Remarks: Stimulates asymbiotic N fixation, decomposition, and generation of inorganic acids

Known Research: Herron and Witt (1978a, 1978b); Herron (1979); Baker (1981); Syltie (1981); Laughlin et al. (1982a, 1982b); Elegba and Rennie (1984)

**Ag Rite**

Company: Weyerhaeuser, Marshfield, WI 54449

Ingredients: By-product of "fire-door" construction

Claims: Acts as a liming material with neutralizing index of 57

**Agro-Culture Liquid Fertilizer**

Company: 5555 N. Lowell Rd., St. Johns, MI 48879

Ingredients: 8-20-2 and 10-27-5 liquid fertilizers

Claims: Low salt, higher availability

Remarks: Use as pop-up fertilizer at 1 gal/10 bu corn yield

**Agro-Lig** (Possible alternative name: PGS-10)

Company: American Colloid Co., 1500 W. Shore Dr., Arlington Heights, IL 6004

Ingredients: 84% humates (65% humic acid) with small amounts (generally <1%) of 23 elements, e.g., Fe, 0.5%; Mg, 0.5%; Mn, 0.02%; B, 0.01%; K, 0.07%

Claims: Increases buffering capacity of soil and chelation of metal ions, increased cation exchange capacity and improves phosphate availability

Remarks: Is dry ground formulation of Leonardite; recommended rates 300-500 lb/A broadcast, 15 lb/A banded or 5 lb/A foliar

Known Research: Weis (1985); Weis (1986)

**Agro-Lizer** (Apparently similar to Calcium-25)

Company: Biochemical Marketing Corporation, 3506 N. Nottingham Street, Arlington, VA 22207

Claims: Increases yield

Remarks: Apparently is a nutrient or micronutrient containing material; for corn 2.2 lb to be dissolved in 100 gal H<sub>2</sub>O and sprayed at 10 gal/A

**AgroMax** (See AgroPlus)

**AgroMAX**

Company: KT Corp., P.O. Box 9425, Berkeley, CA 94709

Ingredients: Polyethylene glycol 25%; inert ingredients (powdered corn cob and walnut shell) 75%

Claims: Increases crop growth, reduces evaporation, reduces runoff and erosion

Remarks: Apply at 32 lb/A; best when not worked into soil; not recommended for fine-textured soils including silt loams, clay, silty clay, silty clay loams, or silt

**Agronomix**

Company: Roche Vitamins and Fine Chemicals, Nutley, NJ 07110

Ingredients: Containing one or more of the following: ascorbic acid, biotin, pyridoxine, HC, thiamine hydrochloride, thiamine, mononitrate riboflavin, folic acid, niacineamide, pantothenic acid and inert carriers

Claims: Improves utilization of fertilizers and improves yield and quality

**AgroPlus**

Company: Agro Plus Inc., P.O. Box 374, Hawkins, TX 75765

Ingredients: Extract of bacteria, yeast and fungi cultures, 10%; adenine, 0.0004%; indolebutyric acid, 0.0004%; indoleacetic acid, 0.0004%; gibberellins, 0.0004%

Claims: Activates biological functions in soil; stimulates germination and growth

Remarks: Biological growth activator; identical labels used for AgroPlus and AgroMax; said to be first version of Grozyme

Known Research: Kelling and Weis (1978); Schulte and Kelling (1978); Oplinger (1979); Kelling et al. (1979, 1980); Frank (1982); Penas (1983); Edmeades (2002)

**Agrostemin**

Company: Vasad International, Inc., Princeton, NJ

Ingredients: Allantoin, 2.59%; tryptophan, 1.09%; folic acid, 0.16%; glutamic acid, 0.109%; allantoic acid, 3.3%; orcialanine, 0.25%; adenine, 0.5%; other amino acids, 2.0%

Claims: Stimulates absorption of minerals, decomposition of organic matter; improves stress resistance; gives higher yields

Known Research: Wolkowski and Kelling (1988)

**Agrovita** (See Agralife)**Agr-Star**

Company: Agr-Star International Inc., 1976 Linn, North Kansas City, MO 64116

Ingredients: Several formulations of liquid fertilizers, including 9-18-9, Insta Cal, 9% N, 9% Ca and 3-18-18

Remarks: Program calls for 3-5 gal/A 9-18-9 plus 3 gal of Insta Cal and may want to use 40-60 lb N/A but "is not a requirement"

**Agr-Star Soil Amendment #1**

Company: Agr-Star International Inc., 1976 Linn, North Kansas City, MO 64116

Ingredients: Nonyl phenoxy polyethoxy ethanol, 26%

Claims: Increases infiltration and root contact

**ALC Alunite Complex**

Company: Calunite Corp., Mountainside, NJ 07092  
 Ingredients: Mined volcanic deposit including oxides of Ca, Mg, Al, Fe, Cu, Zn, Mo, Mn, K, Na, B, S, P, and Si  
 Claims: Improves fertilizer efficiency; retards nutrient leaching  
 Remarks: Increases the chemical reactions in the soil solution; mixed with standard fertilizers  
 Known Research: Christensen (1977)

**Alga-Min+**

Company: J3, P.O. Box 9272, Moscow, ID 83843  
 Ingredients: 2-11-5 liquid seed and root starter  
 Remarks: Use 1.6-3.2 oz/100 lb of seed; may be newly named to Seed Prod  
 Known Research: Karrow (1989)

**Algistim**

Ingredients: Seaweed extract with cytokinins and trace elements  
 Known Research: Edmeades (2002)

**Algit**

Ingredients: Kelpmeal  
 Claims: Better quality, higher yields

**All-Plant, All-Ferm, All-Free, All-K, All-Tracer, All-Wet**

Company: All-Plant Liquid Plant Food, Inc., 821 St. Rt. 511N, R.D. #3, Ashland, OH 44805  
 Ingredients: Have several different products, including All-Ferm (a living soil builder), All-Free (gluco-ammonium citrate an organic nutrient sequestering agent), All-K (0-0-30 liquid potash), All-Trace (chelated micronutrient mix), and All-Wet (a soil conditioning and emulsifying agent); no specific ingredients were given in the advertising

**Alpine Plant Food**

Company: Alpine Plant Foods Ltd., Box 730, New Hamburg, Ontario, Canada N0B 2G0  
 Ingredients: Apparently several grades although specific grades not given  
 Claims: "Requires much lower rate of application," "superior efficiency," "absolutely uniform," low salt

**Amazon Green** (See AgriKey)**AMC** (See Phoenix)**AMG-Arex**

Company: Arex of Minnesota, Hwy. 30, New Richland, MN 56072  
 Ingredients: 9-18-9 made with KOH  
 Claims: Two times more efficient; neutral; low salt

**AmiSorb**

Company: Amilar International, 6502 S. Archer Rd., Bedford Park, IL 60501  
 Ingredients: Carpramid or thermal polyaspartate (copoly[(3-carboxypropionamide)(2-carboxyl-methyl) acetamid])



Claims: Increases nutrient uptake by increasing root branching and root hair development

Remarks: Use 1-2 qt/A

Known Research: Bly et al. (1997b); Duncan et al. (1997); Evers (1999); Gordon (1996, 1997); Lamond et al. (1996a, 1996b, 1997a, 1997b); Lukina et al. (1997); Murdock et al., (1998); Rehm (1997); Sweeney and Kirkham (1997); Thompson (1996, 1998, 1999); Whitney et al. (1996); Woodard et al. (1997a); NCR-103 (2001); Kelling and Speth (2001)

### **Amplify and Amplify D**

Company: Conklin Co. Inc., 4660 W. 77th Street, Minneapolis, MN 55435

Ingredients: Sodium phosphate, adenosine monophosphate 95.8%

Claims: Aids seed germination

Remarks: Developed for cotton, may also be promoted for other crops; Amplify D is planter box treatment of similar ingredients at lower concentration (26.8%)

Known Research: Grabe et al. (1988); Claassen et al. (1999)

### **Amway Spray Adjuvant**

Company: Amway Corp., 7575 E. Fulton Road, Ada, MI 49355

Ingredients: Alkylpolyethoxylated alcohol

Claims: Improves herbicide coverage; increases soil penetration; makes water wetter; reduces water runoff; keeps equipment clean

Remarks: Reduces surface tension

Known Research: Crookston (1977a); Sunderman (1978); Doersch (1979); Kelling (1980); Blumberg (1981); Lawless et al. (1981); Stone (1981); Beck et al. (1983); Wolkowski et al. (1983); Penas (1983); Sunderman (1983); Wolkowski et al. (1985a); Kniep et al. (1987); Murdock (undated)

### **AP 682** (See BioPlus)

### **Anti-Stress 550**

Company: Polymer Ag, Inc., P.O. Box 9665, Fresno, CA 93793

Ingredients: Water-soluble acrylic latex polymer

Claims: Reduces transpiration water loss; more efficient use of other chemicals

Remarks: To be applied foliarly

### **Aqua-10** (Possible alternative names: Agriblend)

Company: Aqua-10 Corp., P.O. Box 492, West Beaufort Road, Beaufort, NC 28516

Ingredients: Seaweed foliar spray 2-0.6-1.8

Claims: Increased yield and quality

Remarks: Natural balance of plant nutrients and micronutrients

Known Research: Lilly (1978)

### **Aqua-Gro**

Company: Aquatrols Corp. of America

Ingredients: Blended ester and ether alcohol non-ionic organic wetting agent; granular formulation is 40% (wt) liquid on vermiculite

Claims: Makes water wetter; cuts down evaporation loss; increases fertilizer efficiency

Remarks: Reduces surface tension

Known Research: Valoras et al. (1969); Hunt and Baker (1981)

**Aqua Humus**

Company: America Humates Inc., Dallas, TX  
 Ingredients: 12-9-6 fertilizer containing Leonardite  
 Known Research: Egli and Pendleton (1965)

**Aqua-Mate**

Company: Hydrotex, Dallas, TX 75247  
 Claims: Improves soil penetration, root contact, and plant coverage; reduces runoff and evaporation; improves irrigation  
 Remarks: Nonionic wetting agent and surfactant; reduces surface tension

**AQUA-MUL**

Company: Bioferm International, 209 Chester Ave., Moorestown, NH 08057  
 Ingredients: Ethoxylated nonylphenols, ethoxylated alcohols, K-polyhydroxylignin sulfonates, K-fulvo-humates, marine algae extracts and yeast extracts  
 Claims: Increases water penetration, fertilizer efficiency and root growth, prevents puddling  
 Remarks: Soil penetrant and chelating agent

**Aquasorb**

Company: SNF Floezger, 41 Rue Jean-Huss 41, 4200 Ste. Etienne, FRANCE  
 Ingredients: Specific ingredients not given; apparently a synthetic polymer  
 Claims: Synthetic water retention aid, increases moisture retention 40-200 times and reduces water consumption 4-6 times; not toxic to plant growth  
 Remarks: Use 1-4 lb/cubic yard of soil

**ARISE**

Company: Loveland Industries, 2307 W. 8th Street, Loveland, CO 80537  
 Ingredients: Marine algae extracts, 4%; microbial extracts, 5%; acetic acid (preservative), 2%  
 Claims: Promotes emergence, root growth, plant vigor and increases yields  
 Remarks: Seed treatment

**Arouse**

Company: Alpine Plant Foods Ltd., 3185 Cline Road, Coryton, IN 47112  
 Ingredients: 3.5% seaweed extracts, 0.5 ppm indoleacetic acid, 0.5 ppm indolebutyric acid with some micronutrients (0.5% Mg, 0.2% Fe, 0.1% Mn, 0.0005% Mo, 0.1% Zn)  
 Claims: More mellow soil, increased nutrient availability, yields and quality and less soil erosion  
 Remarks: Overall rate of 0.5 gal/A is recommended (split between herbicide, starter and foliar)

**Asco-Extract**

Company: Acadian Seaplants Ltd., 202 Brownlow Ave., Tower D, Suite 304, Dartmouth, Nova Scotia, Canada B3B 1T5  
 Ingredients: Soluble marine algae powder made of *Ascophyllum nodosum* with guaranteed analysis of 1-1-15  
 Claims: Increased resistance to pests and diseases; increased stress tolerance, sugar content, root growth, yields and better storage qualities  
 Remarks: For corn, apply as seed treatment plus three foliar applications of 1 gal/A of concentrate

**Asset**

Company: Setre Chemical Co., 5100 Poplar Ave., Suite 3200, Memphis, TN 38137

Ingredients: 20% N and 2% Mg derived from magnesium ammonium carboxylates

Claims: Stimulates root growth, gives stronger stalks and higher yields

Remarks: Apply 1/3 pt/A with starter or anhydrous or 1/3 to 2/3 pt/A broadcast, depending on soil texture; to be used with anhydrous ammonia or other N-based liquid fertilizers

Known Research: Alley (1993); Rosen and Birong (1998); Kelling et al. (1998)

**Asset RS, Asset PPS, Asset RTU**

Company: Helena Chemical Co., 6075 Poplar Ave., Suite 500, Memphis, TN 38119

Ingredients: Various grades (i.e., 5-15-1, 6-20-5) but all contain ammonium carboxylates

Claims: Promotes large, strong root system, larger kernels, improves uptake of nutrients, moisture, higher yields

Known Research: Woodard et al. (1995, 1996); Bly et al. (1997a); Henninger (2000)

**Auxigro**

Company: Auxein Corp., 3125 Sovereign Dr., Suite B, Lansing, MI 48911-4240

Ingredients: Gamma amino butyric acid

Claims: Higher yields, increases the absorption of nutrients; called a metabolic primer

Remarks: For potatoes; apply 5 oz/A at "hooking," apply same amount 21-28 days after first application

Known Research: Binning et al. (2000); Stevenson and James (2000); Giles and Cattanch (2000b, 2001b); Henninger (1999, 2000); Hopkins (2003)

**Awaken**

Company: United-Agri Products, 419 18th St., P.O. Box 1286, Greeley, CO 80631

Ingredients: 16-0-2 fertilizer containing zinc ammonium acetate (ACA)

Claims: Improves plant vigor, yield and stress tolerance

Remarks: Recommended rates of application 1.67 to 4 qt/A, in furrow or impregnated

Known Research: Giles and Cattanch (2000a); Henninger (1999, 2000); Infante-Casella et al. (2002)

**AZOBAC**

Company: Bioferm International, 209 Chester Ave., Moorestown, NJ 08057

Ingredients: Azotobacter cultures in combination with fractionated fulvo-humate seed penetrants and trace nutrients complexed with water inhibiting starch polymers

Claims: Shortens germination period, more uniform germination; improves disease resistance, plant vigor, frost resistance, crop quality and yields

Remarks: Seed inoculant

**Azobacterin**

Ingredients: A generic term for inoculants that contain *Azotobacter chroococcum*

Claims: Asymbiotic nitrogen fixation increased

Known Research: Dunigan (1979)

**AZOMIN**

Company: Bioferm International, 209 Chester Ave., Moorestown, NJ 08057

Ingredients: Auxin and cytokinin supplying microbial extracts, trace minerals, essential nutrients and fulvo humates

Claims: Promotes mobilization and translocation of Fe in plants, promotes early maturation, frost resistance, disease resistance, retards senescence, germination and improves yields

Remarks: Seed treatment and foliar spray

### **Azomite Soil-Ayd**

Company: Azomite, 905 N. 6th St., Phoenix, AZ 85004

Ingredients: Mined deposit of colloidal silicates with claimed concentrations of 66 elements

### **Azospirillum**

Company: Bio-Technology General (Israel), Ltd.

Ingredients: *Azospirillum lipoferum*

Claims: Provides fixed N to corn roots in symbiotic relationship

Remarks: Nitrogen-fixing bacterium that preferentially infects corn roots

Known Research: Sims and Sommers (1985); Martin et al. (1993); Purcino et al. (1996); Woodard et al. (1997); Farber (1993)

### **BacAtack (Detox and LS)**

Company: Bio/Syn Research Associates, Inc., P.O. Box 451, West Des Moines, IA 50265

Ingredients: A dried, powder microbial inoculant containing 500 billion organisms per pound

Remarks: Use 1 lb/A; Detox apparently to be land applied; LS apparently to be applied to wastes such as liquid manure pits.

### **BAC-T<sub>x</sub>**

Company: Advanced Science and Technology Corp.

Claims: Increases plant growth and flavor; decreases susceptibility to disease and insects; improves soil aeration and water percolation

Remarks: A biodegradability accelerator that aids in the digestion of cover crop and fertilizers

### **Balance**

Company: National Ag Products Development Inc., 1235 100th Street SE, Byron Center, MI 49315

Ingredients: Extract of Leonardite, 8% Ca and 260 ppm Fe

Claims: Increases P and Fe availability; stimulates microorganisms

Remarks: 1 qt replaces 200-500 lb of dry humate; subtitled a "pH buffering agent"

### **Bal-Natur-Ate**

Ingredients:  $\text{Al}_2\text{Si}_4\text{O}_{10}\text{OH}_2$ ; lists 27 elements present including 8% K

Claims: Food supplement, fertilizer replacer, yield increases

Remarks: Organic mineral fertilizer and soil conditioner

### **Basic H**

Company: Shaklee Corp., 1900 Powell Street, Emeryville, CA 94608

Ingredients: Linear alcohol alkoxyates, 28%

Claims: Helps plants absorb nutrients, improves yields, protein content, makes water wetter, reduces runoff

Remarks: Nonionic wetting agent; now specifically disclaiming effects on yield, nutrient release, or pesticide activity

Known Research: Sunderman (1978); Doersch (1979); Kelling (1980); Kelling et al. (1980); Hunter and Baker (1981); Lawless et al. (1981); Stone (1981); Wolkowski et al. (1983); Penas (1983); Sunderman (1983); Wolkowski et al. (1985a); Rehm and Fenster (1986); Kniep et al. (1987); Murdock (undated)

### **Bayfolan**

Company: Helena Chemical Co., 6075 Poplar Ave., Suite 500, Memphis, TN 38119  
 Ingredients: Contains 9-6-5 and micronutrients in chelated form  
 Claims: Improves yield, quality, ability to recover from damage and root growth  
 Remarks: Foliar spray  
 Known Research: Randall, cited in Overdahl (1976)

### **Bestline LC**

Remarks: Apparently a wetting agent  
 Known Research: Doersch (1979)

### **Best Plant Food**

Company: Best Plant Food Products, Inc., RR5, Box 135, Sylvania GA 30467  
 Ingredients: Several formulations available, including 9-18-9, 10-10-10 and 3-18-18  
 Claims: Low salt, pH balanced fertilizer

### **Bio-A**

Company: Sybron Biochemical, 111 Kesler Mill Rd., Salem, VA 24153  
 Ingredients: 99% bacteria culture of *Bacillus* and *Pseudomonas*  
 Claims: Improves nutrient utilization and reduces plant stress

### **BIO-ACT**

Company: Cu-Fe-Co Manufacturers, P.O. Box 182, Kearney, NE 68847  
 Ingredients: Complex organic-inorganic fermentation product  
 Claims: More mellow soil, better moisture retention and faster decomposition of residues  
 Remarks: Designed to enhance microbial growth  
 Known Research: Grabouski and Wiese, cited in Overdahl (1975); Watkins et al. (1995)

### **BioAgriZyne-682**

Company: Astarte, Inc., P.O. Box 3062, Garland, TX 75041  
 Ingredients: Indole-3-acetic acid, 0.005%; indole-3-butyric acid, 0.0025%; naphthoxyacetic acid, 0.006%; gibberelic [sic], 0.004%; thiamine, 0.007%  
 Claims: More rapid germination, better root development, improved yield and crop quality; reduces fertilizer need  
 Remarks: Applied at 8 oz/A (other literature says 16 oz/A) prior to or shortly after planting; apparently are other BAZ numbered products

### **Bio-Blue** (See Midwestern Bio-Ag)

Ingredients: 3 grades of "100% usable plant food"

**BioBoost**

Company: Midwestern Bio-Ag, Hwy. ID, Box 126, Blue Mounds, WI 53517  
 Ingredients: Approx. 4% chelated Zn  
 Known Research: Kelling et al. (1996)

**BioBPlus**

Company: Sybron Biochemical, 111 Kesler Mill Rd., Salem, VA 24153  
 Ingredients: Bacterial cultures of *Bacillus*  
 Claims: Improves utilization of nutrients; increases resistance stress

**BioC**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Digested chicken manure with algae complex

**Bio Cal** (See Midwestern Bio-Ag)

Ingredients: Not specifically given but contains 30-34% Ca, 4-6% S  
 Remarks: Apparently being sold as liming material with very small particle size; to be applied at 500-2000 lb/A

**Bio-Cat Sure-Grow**

Company: Bio-Catalytic Corp., Fort Worth National Bank Bldg., Suite 1810, Fort Worth, TX 76102  
 Ingredients: Biological catalyst that includes micronutrients  
 Claims: Increases yields, accelerated growth, uniform ripening, sturdier plants  
 Remarks: Activates the soil microorganisms

**Bio-Chem F**

Known Research: Dow et al. (1976)

**Bio-Control**

Company: KLM Bio Systems, Inc., Bloomington, MN 55437  
 Claims: Reduces thatch in lawns and decreases fusarium and other diseases  
 Remarks: Contents of three bottles (no ingredients given) are mixed and sprayed on lawn

**Bioenergy Plus**

Company: BioGREEN, Inc., Suite 175, 6400 Atlantic Blvd., Atlanta, GA 30071  
 Ingredients: Mixture of dried seaweed, chicken manure, wood ashes, granite dust, peanut hulls, and feather meal with guaranteed analysis of 2-1-1  
 Claims: High yields; tastier produce; increases nematode resistance

**Bio-Forge**

Company: Stoller Enterprises, Inc., 4001 W. Sam Houston Pkwy N., Suite 100, Houston, TX 77043  
 Ingredients: 2-0-3 derived from urea and KOH  
 Claims: Stimulates early growth of some crops  
 Remarks: Apply 1 pt/A before plants have four leaves  
 Known Research: Whitney and Gordon (1998)

**Bioform FPH 8-8-8**

Company: Hallier Enterprises, P.O. Box 67, Vermillion, KS 66544

Ingredients: Fortified fish protein hydrolysate and seaweed extracts

Claims: Higher yield; earlier maturation

Remarks: To be used in supplement to conventional fertilizer program; for corn, apply at 1 qt/A  
2 weeks before tasseling

Known Research: Urwiler and Stutte (1988)

**Biogenesis I, III SDG, IIISD**

Company: Tainio Technology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286,  
Cheney, WA 99004

Ingredients: Apparently these are live microbe inoculants

Claims: Prevents root diseases; stimulates beneficial microbes

**BIO-GRO**

Company: Bioproducts Oregon Ltd., Warrenton, OR 97146

Ingredients: 10-5-5 with micronutrients present

Remarks: Liquid fish fertilizer

**Bio-Humic Fertilizer**

Company: Wonder Life Enterprises, Inc., Hwy. 21, P.O. Box 3746, Bryan, TX 77801

Ingredients: Various low analysis fertilizers with grades such as 2-2-2, 0-2-2, 0-1-1, and 4-2-2;  
all contain small amounts of trace elements Ca 1%, Mg 0.5%, S 1%, B 0.02%, Cu  
0.05%, Fe 0.1%, Mn 0.05%, Zn 0.05%

Remarks: Recommended rate is 400 lb/A and used in conjunction with Bio-Humic Agricultural  
Production Systems

**Bio-Humus**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356

Ingredients: Extract of mined humates, manure tea, and compost tea

**Bio-K**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356

Ingredients: 1-0-5 from two K sources

**Bio-Life**

Company: Bio-Life Inc., Box 149, Ionia, IA 50645

Ingredients: Humic acid, 15%; concentrated humus, 15%

Claims: Improves tillage; reduces soil erosion; increases water holding capacity; stimulates plant  
enzymes

**Bio L.I.F.E**

Company: Global Farming Systems, Ltd. and T.L.P. Enterprises, 21030 Trebec Ave., Euclid,  
OH 44119

Ingredients: A concentrated microbial inoculant including N-fixing bacteria

Claims: Reduces N need 80%; increases yields; eliminates need for pesticides

Remarks: Apply 1 gal/10 acres

**BIO-MAG**

Company: Harold Forster Industries, Suite 2, 802 16th Avenue, SW, Calgary, Alberta  
 Claims: Improved germination and yield, shorter growing season required  
 Remarks: Magnetic seed treatment  
 Known Research Grabe et al. (1988)

**Bio-Mix**

Company: Tainio Technology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286, Cheney, WA 99004  
 Ingredients: A specially blended nutrient package  
 Claims: Gives plants a balanced start  
 Remarks: Apply at 1 lb/A; same name used for dairy manure tea sold by AgriEnergy Resources, Princeton, IL

**Bio Pac Vital**

Company: Biosoiltec Management, Inc., 300 N. Ladd, Pontiac, IL 61764  
 Ingredients: Have various crop specific micronutrient packages as EDTA chelates in a solution with auxins, gibberellins, cytokinins and indole compounds  
 Remarks: Applied at about the same rate as is typical for chelated micronutrients

**Bio-Phos**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: 10-26-0 derived from phosphate combined with carbons

**BioPlus** (Several products including AP682, HV682 Soil Stabilizer, SS100, Micro 700, Micro 800, ADD660)

Company: Agro Marketing, Inc., P.O. Box 303, Hawkins, TX 75765  
 Ingredients: Most products are “poly-co-ferment” liquid complexes with vitamins and hormones; various concentrations of compounds such as gibberellic acid and indoleacetic acid; micro series are apparently kelp extracts  
 Claims: Root and growth stimulant; better yields; more efficient nutrient use, better soil condition; some variation with product  
 Remarks: For AP682, apply 0.1 gal/A; stimulates soil microbes; claims to be a second generation of AgroPlus  
 Known Research: Kelling and Schulte (1991)

**Bio-Prime**

Company: Wonder Life Corp. of America, 5875 Fleur Drive, Des Moines, IA 50315  
 Ingredients: None specified  
 Claims: Increases biological proliferation and N fixation, releases soil nutrients  
 Remarks: Apply at 1 qt/A

**BioRoot**

Company: Midwestern Bio-Ag, Hwy ID, Box 126, Blue Mounds, WI 53517  
 Ingredients: 2-0-1 blended from kelp, fish, meal, diatomaceous earth, and molasses  
 Claims: Increases root system; lowers insecticide need  
 Remarks: Apply at 10-20 lb/A



**Bio Seed Gard**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Blend of mycorrhizae and trichoderma in a unique blend of food sources  
 Remarks: Use 4-8 oz/100 lb seed

**Biosorb SCF**

Company: Energro, Inc., 8300 N. Hayden Road #207, Scottsdale, AZ 85258  
 Ingredients: Is a starch-graft polymer applied as a seed coating that may include micronutrients  
 Claims: Faster germination, earlier emergence, improved stands and higher yields

**Bio Start** (Possible alternative name: Nitroac)

Company: Bio Soil Tec Management Inc., P.O. Box 13, Pontiac, IL 61764  
 Ingredients: Concentrated extract of bacteria, yeast and fungi cultures 5%, including *Bacillus subtilis*, *B. megaterium*, *B. cereus*, *B. thuringiensis*, *Azotobacteraceae*, *Rhizobium japonicum*, *R. leguminosorum*, *Aspergillus* and *Lactobacillus*  
 Remarks: Apply 1 gal/5 acres

**Bio-Till**

Company: Pro-Ag Inc., 2072 East Center Circle, Minneapolis, MN 55441  
 Ingredients: Labeled as 20-5-5, from aqueous NH<sub>3</sub>, phosphoric acid, KOH with MnO, FeO, and CuO, but advertising stresses presence of over 100 different bacteria and other living organisms; also contains biochemical activator  
 Claims: Makes soil nutrients more available; promotes natural fertility processes; increases yields  
 Remarks: Used at 13 oz/A, reduces fertilizer needs by 70%  
 Known Research: Watkins et al. (1994); Rosen et al. (1995)

**Bio-Trace**

Company: LTL Marketing, Box 167, Castlewood, SD 57223  
 Ingredients: Blend of secondary and micronutrients (2.5% S, 0.02% B, 0.05% Cu, 1% Fe, 2.5% Mn, 5% Zn) in a mixture of enzymes  
 Claims: Enhances nutrient uptake; releases bound nutrients; improves soil tilth

**Biotron** (See P3K)**Bioveg**

Remarks: Apparently a wetting agent  
 Known Research: Doersch (1979)

**Bivert**

Company: Stall Chemical Co., 1006 Paulsun Drive, San Antonio, TX 78219  
 Ingredients: Amine salts of organic acids, aromatic acid, aromatic and aliphatic petroleum distillate  
 Claims: Reduces leaching; reduces evaporation; increases coverage of herbicides

**Black Powder**

Ingredients: Contains iron and traces of other nutrients  
 Claims: Reduces fertilizer need

**BLEND**

Company: Bio-Huma-Netics  
 Remarks: Apparently a nutrient containing foliar material

**Blitz**

Company: Ag Spectrum, P.O. Box 215, 428 E. 11 th St., DeWitt, IA 52742  
 Ingredients: 58% ammonium laureth sulphate

**Bolt** (AmiSorb for sugar cane)**Boron Plus**

Company: Custom Chemicides, P.O. Bxo 11216, Fresno, CA 93772  
 Ingredients: 5% boron with organic chelating agents

**Bortrac150**

Company: Phosyn Plc., Wellington Rd., The Industrial Estate, Pocklington, York, YO4, 2NR, United Kingdom  
 Ingredients: 15% liquid boron

**Bountiful 8-8-8** (see Eco-Gro)**BOV-A-MURA**

Company: PBI Gordon Corp., Kansas City, KS  
 Ingredients: Solution of filtered, blended and stabilized manure from selected dairy farms, treated with herbs to deodorize  
 Claims: Stimulates soil organisms, releases plant nutrients  
 Remarks: A “natural soil activator”; recommended for lawns, turf, and gardens

**Breakthrough** (Breakthru)

Company: American Agriproducts Corp., 5432 Edina Ind. Blvd., Edina, MN 55435  
 Ingredients: Allylpolyoxyethylene ethanols, isopropanol, dimethylpolysilox, 60.9%  
 Claims: Releases soil nutrients, increases micronutrient uptake, makes water wetter, runoff and erosion reduced  
 Remarks: Soil penetrant

**Bright Sun Soil Booster**

Company: Cargill, Molasses Liquid Products Div., Box 9300/48, Minneapolis, MN 55440  
 Ingredients: Guaranteed analysis of 2-2-2 derived from KNO<sub>3</sub>, urea, amino acids, and phosphoric acid; implied that it contains a carbon source  
 Claims: Accelerates growth of soil microbes; provides nutrients; increases infiltration; reduces compaction; makes fertilizers “slow release”  
 Remarks: Apply 30 to 150 gal/A with irrigation water

**Burst** (See ARISE)

Company: Loveland Industries, 2307 W. 8th Street, Loveland, CO 80537  
 Ingredients: Marine algae extract, 4%; microbial extract, 5%; acetic acid (preservative), 2%  
 Claims: Promotes root growth, vigor and yields, assists in germination  
 Remarks: Foliar spray  
 Known Research: Missouri (1978a); Edmeades (2002)

**BX** (Possible alternative names: P3K, Biotron)

Company: Yolo Microbion Co., 511 Main Street #209, P.O. Box 1574, Woodland, CA 95695

Ingredients: Contains several groups of microorganisms including N fixers

Claims: Improves structure, water retention; stimulates decomposition and N fixation

Remarks: Total fertilizer substitute

**Calcium-25**

Company: Bio-Gard Agronomics, Inc., P.O. Box 4477, Falls Church, VA 22044

Ingredients: Calcium mineral supplement

Claims: Increases yields 20 to 50%

Remarks: To be used as a foliar spray at 0.05 lb dry material/acre dissolved in 20 gal water for corn; higher rate (0.4 lb/A) for other crops; apparently is the lawn and garden product equivalent of Agro-Lizer

**Calfide**

Company: Western Soils Co., P.O. Box 2457, Waterloo, IA

Claims: Neutralizes, breaks up heavy soils, releases soil nutrients, speeds germination, furnishes essential minerals, improves yield

Remarks: "Nature's own soil conditioners from heart of the Rockies"

**CALHUME**

Company: Agronics, Inc., 701 Madison St., NE, Albuquerque, NM 87110

Ingredients: 5-0-0-10 Ca liquid

Claims: Supplies Ca and increases total nutrient availability

Remarks: pH 2

**Calphos**

Company: Thompson Sales Co., P.O. Box 246, Montgomery, AL 36101

Ingredients: Unacidulated soft phosphate clay, P<sub>2</sub>O<sub>5</sub>, 18%; CaO, 21%; 16 other elements listed

Claims: Stimulates early root formation, speeds maturity, encourages earthworms and microorganisms

Remarks: 2% soluble phosphate

**CAL/SPIN**

Company: Bio/Syn Research Associates, P.O. Box 451, West Des Moines, IA 50265

Claims: Releases calcium and other soil nutrients

Remarks: Liquid antifixation catalyst which separates bound soil calcium

**Carbonated Irrigation Water**

Remarks: Injection of CO<sub>2</sub> into irrigation lines, multiple times per year

Known Research: Mauney and Hendrix (1988); Hartze and Holt (1991); Novero et al., 1991); Stofella et al. (1995); Storlie and Heckman (1996)

**CARDAK**

Company: Car-Dak Inc., Box 1916, Bismark, ND 58502

Ingredients: No specifics, but is a starch graft copolymer

Claims: Used as seed coating it improves germination, increases yields, enhances emergence, shortens time to maturity

Known Research: Grabe et al. (1988)

**Catalyst Altered Water (C.A.W.)** (See Nature's Nutrients; LA Water Naturalizer, Willard's Water)

Company: C.A.W. Industries, Rapid City, SD

Ingredients: Unique micelle of altered water with trace minerals from refined lignite

Claims: Acts as a universal hormone; increases nutrient use efficiency and loosens hard or clayey soils

Remarks: Apply at 1-2 oz/A

Known Research: Kelling et al. (1997b)

**Cellugest**

Company: Bioferm International, 209 Chester Avenue, Moorestown, NJ 08057

Ingredients: Microbiological complex of cellulose digesting organisms with fluvo-humates and trace elements added; N fixers also present

Claims: Speeds residue decomposition and makes N available to microorganisms

**Charge**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772

Ingredients: 8-32-56 with zinc, iron, lignosulfonates, and liquid humates

Claims: Builds a strong root system early, higher yields, and hastens maturity

**Chem Crystal**

Company: LTL Marketing, Box 167, Castlewood, SD 57223

Ingredients: Various NPK grades

**Chem Free**

Company: LTL Marketing, Box 167, Castlewood, SD 57223

Ingredients: 12-6-6 or 5-10-10 with micronutrients, liquid biological-based fertilizer

**Chem Wet Satur-8**

Company: LTL Marketing, Box 167, Castlewood, SD 57223

Ingredients: Spray adjuvant made from coconut oil

**Clay Buster**

Company: Kingsford Industries Inc., 482 Commissioner's Road, E. London, Ontario N6C 2T8

Ingredients: Calcium, 21%; sulfur, 16%; sulfates, 46%

Claims: Breaks up topsoil

**Clean Green Plant Food**

Company: Tech Ag, Inc., 71912 Nighthawk Trail, P.O. Box 755, McCook, NE 69001

Ingredients: 34-4-4 and sulfur or 14-30-10 and sulfur, sugar-based fertilizer with trace minerals; also contains biological stimulant

Claims: 100% water soluble, increased germination and early growth reduces soil compaction, increases aeration

Remarks: One ton is enough fertilizer for 200 acres

**Clean Start**

Company: Ag Spectrum Co., P.O. Box 215, 602 First St., Dewitt, IA 52742  
 Ingredients: A 8-19-3 fertilizer derived from  $\text{NH}_4\text{OH}$ , nitrogen solution, urea, orthophosphoric acid and KOH  
 Claims: "Prepared by a process that improves nutrient availability"  
 Remarks: Recommended as row fertilizer at 2-6 gal/A

**Clearstart**

Company: Clearstart Liquid Fertilizer, RR 1, Box 168, Emery, SD 57332  
 Ingredients: Several N, P, K formulations such as 9-18-0 and 3-18-18  
 Remarks: Apply 3-5 gal/A

**Clodbuster**

Company: Farm Guard Products, 701 Madison St., N.E., Albuquerque, NM 87110  
 Ingredients: Blended New Mexico humates; humic acids, 15%; humus, 30%; montmorillonite, 5%; silicon dioxide, 5%  
 Claims: Soil softener supreme; supplies organic activity  
 Remarks: Apparently using the name Fertimax for the program that includes Clodbuster as its base product; appears to be marketing products under company name of Agronics, Inc. with same address

**Colloidal Phosphate**

Company: Hoover Soil Service, Gilman, IL 60938  
 Ingredients: Apparently soft phosphate clay;  $\text{P}_2\text{O}_5$ , 23.63%; CaO, 25.2%;  $\text{Al}_2\text{O}_3$ , 16.7%;  $\text{SiO}_2$ , 16.8%, and 14 other compounds listed  
 Remarks: 70% colloidal material will pass 300-mesh screen

**COMO**

Company: Stoller Chemical Co., Inc., 8582 Katy Freeway Suite 200, Houston, TX 77024  
 Claims: Accelerates nitrogen fixation and use by legumes; makes crops more drought-resistant  
 Remarks: Apparently is a cobalt and molybdenum fertilizer

**Compo Star**

Ingredients: Contains several growth regulators and cultures of bacteria, fungi, and actinomycetes  
 Remarks: Apparently an inoculant for compost systems

**Concept Fish**

Company: Ag Connection Sales, Inc., RR 1, Box 86A, Seneca, KS 66538  
 Ingredients: Soluble fish fertilizer

**Concern** (See AgriKey)**Consolime**

Company: Consolidated Papers, Inc., Wisconsin Rapids, WI  
 Ingredients: A papermill lime sludge of colloidal calcium carbonate

**Controlled pH Liquid Fertilizer**

Company: Advanced Prescription Fertilizer, Inc., 45602 282nd St., Suite #1, Hurley, SD 57036

Ingredients: 24-0-0-4

Claims: Nutrients more available to plants; does not increase pH of soil

**Coron**

Ingredients: Apparently a PGR

Known Research: Henninger (2000)

**Cosmo Fertilizer**

Company: Thomas Heath Enterprises, 527 W. Highland Avenue, Tracy, CA 95376

Ingredients: N, 4.9%; P<sub>2</sub>O<sub>5</sub>, 5.1%; K<sub>2</sub>O, 5.5%; trace amounts of Zn, Fe, Mn, Cu, and Ca

Remarks: Recommended rate, one drop per gallon of water

**Crop+** (See Cytozyme)**Crop Booster**

Ingredients: Hydrolyzed fish with the possible addition of other organic products and inorganic nutrients

Known Research: Edmeades (2002)

**Crop Booster**

Company: Agriliance, Inver Grove Heights, MN

Ingredients: Foliar micronutrient fertilizer containing Mn (3.2%), Zn (2.1%), Fe (0.3%), B (0.2%), and Mo (0.01%)

Remarks: Primarily recommended for soybeans at 1-2 qt/A

Known Research: Gerwing et al. (2002)

**Crop Life**

Company: Polymer Technologies, Inc., P.O. Box 568, Nocatee, FL 33864

Claims: Helps protect plants against heat, drought, frost, insects, and disease

Remarks: Apparently is an acrylic polymer for spraying on plant foliage

**Crop Plus**

Company: Ag Connection Inc., 2212 N. 33rd Terrace, St. Joseph, MO 64505

Ingredients: Stabilized natural biochemical product containing adenine, indolebutyric acid, indoleacetic acid, gibberellins and “innumerable” enzymes, coenzymes, vitamins, hormones, amino acids, etc.

Claims: Increases fertilizer efficiency, residue decomposition, ease of tillage, water absorption, retention and drainage, reduces risk from stress, increases germination, yields and quality

Remarks: Apply at 1 gal/10 acres; called a Biological Growth Activator; similar phraseology in advertising to that used by Agro Plus

**CROP Prod**

Company: PROD Inc., P.O. Box 9272, Moscow, ID 83843

Ingredients: 3.5-3.5-3.5

Remarks: Apply foliarly at 8.5- 13 oz/A once or twice

**Crop Residue Digester**

Company: Bio/Syn Research Associates, Inc., P.O. Box 451, West Des Moines, IA 50265  
 Ingredients: Contains a mix of “microorganisms, trace elements, and ancillary growth factors,” including mutant strains of N fixers  
 Claims: Helps digest crop residues and fixes nitrogen (20-80 lb N/A)  
 Remarks: Use 4 oz/A

**Crop-Set**

Company: Improcrop USA, 3031 Catnip Hill Pike, Nicholasville, KY 40356  
 Ingredients: *Lactobacillus* fermentation product that contains micronutrients and vitamins  
 Claims: Improves quality, increases yield  
 Known Research: Karnezos et al. (1998); Giles and Cattanach (2001b)

**Culbac** (Possible alternative names: Fermalizer; Ferma-gro)

Company: Trans Agra International, 101 Hansen Rd., Box 68, Storm Lake, IA 50588  
 Ingredients: Culture of *Lactobacillus acidophilus* on whey and Norwegian kelp extract base  
 Claims: Increases root development, stress tolerance, emergence, stands and yields; increases crop use of fertilizer  
 Remarks: Growth promoting compounds have been suggested; sold as seed treatment or foliar spray  
 Known Research: Overdahl (1976); Oplinger (1977); Kelling and Weis (1978); Oplinger et al. (1978); Kelling et al. (1979, 1980); Edmeades (2002)

**Cytex**

Company: Atlantic & Pacific Res. Inc., Box 14545, N. Palm Beach, FL 33408  
 Ingredients: A natural growth regulator containing a mixture of cytokinins and seaweed extracts  
 Claims: Labeled for use on tomatoes and Florida oranges to increase size and yield of fruit  
 Remarks: Plant growth regulator registered by EPA; use is primarily limited to horticultural crops at present time  
 Known Research: Murphy (1979); Weis (1979, 1980); Kelling et al. (1980); Edmeades (2002)

**Cytozyme** (Have several products including Crop+, Stubble Digester+, Seed+ Treatment+, and Soil+)

Company: Cytozyme Laboratories, Inc., 134 South 700 West, Salt Lake City, UT 84104  
 Ingredients: Derived from marine algae and contains cytokinins and various micronutrients including Cu, Fe, Mn, Zn, Me, and B  
 Claims: Claims vary with product but include activation of soil enzyme systems; increases nutrient retention, speed decomposition; increased stress resistance, lusher growth, increased yields  
 Remarks: Cytokinin stimulated growth  
 Known Research: Kelling et al. (1980); Cothren and Cotterman (1981); Ryan et al. (1982); Wolkowski et al. (1985b); Edmeades (2002)

**DCD**

Company: Produced by SKW Trostberg and apparently Cyanamid of Canada  
 Ingredients: Dicyandiamide  
 Claims: Blocks nitrification reaction  
 Remarks: Appears to be about as effective as nitropyrin (N-Serve)  
 Known Research: Communications in Soil Science and Plant Analysis (1989, #19 and 20 whole

issue); Kelling and Wolkowsi (1989); Malser et al. (1989)



**Denny's Best Fertilizer:**

Claims: Builds soil humus and reduces plant water requirements  
 Remarks: Apply at 150 lb/A

**Desert Bloom**

Company: Hydra-Soil International, P.O. Box 911, Kingfisher, OK 73750  
 Claims: Reduces evaporation moisture loss; reduces leaching and runoff

**Dinoseb** (Also known as PREMERGE, Spark, DNBP)

Ingredients: 2-sec-butyl-4,6 dinitrophenol  
 Remarks: Plant growth regulator  
 Known Research: Hatley et al. (1974); Ohlrogge (1974); Ohlrogge (1977); Oplinger and Bosabe (1977); Benson and Anderson (1978); Johnson et al. (1978); Oplinger (1978); Hicks et al. (1979); Ohlrogge et al. (1980); Regehr (1982)

**Double-X40**

Company: Florentine Products Group, Memphis, TN  
 Ingredients: 15-15-5-5S with micronutrients  
 Claims: Increases plant ability to withstand stress  
 Remarks: Apply 1.5 to 2.0 pt/A for corn at 4-5 leaf stage; advertised as an "auxiliary nutrient compound"

**Drammatic Organic Liquid Fish**

Company: Dramm Corp., 2000 North 18th St., P.O. Box 19600, Manitowoc, WI 54221-1960  
 Ingredients: Several fish hydrolysate-based fertilizers, some containing kelp  
 Claims: Improves yield and quality; increases soil microbes, plant germination, and storage life

**Early Bird Soil Conditioner**

Company: Steakmate Corp., Morgan Hill, CA 95037  
 Ingredients: Apparently is a source of stabilized organic material  
 Claims: Better rooting environment  
 Remarks: Mixed with lawn and garden soil for better physical condition

**Early Harvest PGR**

Company: Griffin Corp., Valdosta, GA 31601  
 Ingredients: 0.09% cytokinins, 0.03% gibberellic acid, and 0.045% indole butyric acid  
 Claims: Improves crop yield and quality  
 Remarks: Apply at 3.2 oz/A  
 Known Research: Henniner (1999; 2000); Kelling and Speth (2000a; 2001)

**Earthbound and Earthbound L** (See Soil Pam)**Earthgreen** (See Menefee Humate)**Earthworm 2001** (Possible alternative name: NEF Complex 20 SL)

Company: Sarantakos Laboratories, Sherman, TX 75090  
 Ingredients: Thermoactinoraye, Azotobacter, Lactobacter, *B. sabitillis*, select other coliform with a coferment containing amino acids, enzymes and a variety of other compounds

Claims: Increases soil microbial activity; reduces crusting and clodding; increases water penetration; reduces alkalinity and readjusts pH; builds humus; increases efficiency of fertilization; improves foliage; improves root crops; reduce need for insecticides and fertilizers

Remarks: All natural and non-toxic soil activator and conditioner; identical ingredient description to NEF Complex 20SL

**Echol West** (Several products including Seed Starter Foliar Spray 1 and 2; Micronized Landplaster)

Company: Echol West Inc., Pocatello, ID 83201

Ingredients: Generally contain some K<sub>2</sub>O, 1-4% and sulfur, 15-50%; along with several other elements including Ca, Mg, Zn, Fe, Mn, or B

Remarks: Supplemental minor element fertilizer; recommended treatments at 5-10 lbs/A

**Eco Crop Booster**

Company: ECO Soil and Water Corp., Box 206, Hickman, NE 68372

Ingredients: Micronutrient mixture for foliar feeding (0.025% B, 0.0009% Co, 0.4% Cu, 0.4% Fe, 0.4% Mn, 0.008% Mo, 0.4% Zn)

**Eco-Gro** (Possible alternative names: Sunrane, Green World, or Bountiful 8-8-8)

Company: Carpole's Inc., Box 32, Garfield, MN 56331

Ingredients: Fortified fish and seaweed fertilizer 8-4-4

Claims: Provides nutrients and hormones, relieves stress, increases yields

Remarks: Contains 6 lb fish per gallon with 4% seaweed added; recommended rate 1 qt/A foliarly applied twice; may be similar to Sunrane

Known Research: Evans and Nelson (1979); Evans and Nelson (1980)

**Ecological Products Soil Conditioner**

Company: Ecological Products LTD, Des Moines, IA

Ingredients: Leonardite

Remarks: Apply 200-1000 lb/A, depending on crop

**Econo 20-30-20**

Company: Nu-Grain Systems Inc., Rt. 3, Box 412, Lake Geneva, WI 53147

Ingredients: A 20-30-20 fertilizer

Claims: Total fertilizer needs for corn is 5-8 lb/A plus nitrogen

Known Research: Contract research study with Prompt and Precise Labs., Oshkosh, WI

**Eco-Soil-Life Soil Conditioner**

Company: Eco-Soil and Water Corp., Box 206, Hickman, NE 68374

Ingredients: 50% ammonium laureth sulfate, 5.5% liquified sea kelp, 10% cultured whey extract, 15% conc. molasses, 1.36% CuEDTA, 2% FeHEDTA, 1.69% MnEDTA, 1.22% ZnEDTA, 13.23% water

Remarks: Apply at 4 oz/A

**Eco-Systems Plant Food and Soil Conditioner**

Company: N&M Services, Inc., 2011 NE 58th Avenue, Des Moines, IA 50313  
 Ingredients: 0-2-2 with Ca, 6%; Mg, 2%; S, 1%  
 Remarks: Applied at 100-300 lb/A banded in row

**EC&S Bio-Stimulant, Fulvic Electrolyte, Liquid Compost**

Company: Enviro Consultant Service, LLC, P.O. Box 1749, Evergreen, CO 80437 (also marketed through Bachmann Inc., West Des Moines, IA)  
 Ingredients: Bio-stimulant contains enzymes, coenzymes, exoenzymes; Liquid Compost 75% apple cider vinegar and humic acid and 25% glucose substances  
 Claims: Stimulates microbes and plant hormone production; improves soil physical conditions; higher yields; less erosion and compaction  
 Remarks: Recommended at 4-32 oz/A

**EC&S More-N**

Company: Enviro Consultant Service, LLC, P.O. Box 1749, Evergreen, CO 80437 (also marketed through Bachmann Inc., West Des Moines, IA)  
 Claims: Can replace up to 120 lb N  
 Remarks: Directions state to be mixed with Bio-Stimulant and Super Liquid Compost; minimum application of 3-5 gallons mixture per acre

**Embark**

Company: 3M Agricultural Products  
 Ingredients: Mefluidide  
 Claims: Plant growth regulator that slows grass growth and keeps from seeding  
 Remarks: Expected use is on pastures

**Enagizer**

Company: Agratronix, Inc., 2713 Harding Road, Des Moines, IA 50310  
 Claims: Earlier planting, faster germination, improved emergence, better roots, increased yields  
 Remarks: Applies electromagnetic energy to seed  
 Known Research: Otto et al. (1975); Swearingin, cited in Overdahl (1976)

**Energizer Liquid Humus**

Company: Organic Laboratories Inc., 5050 Westheimer Road, Houston, TX 77027  
 Ingredients: Humic acid, 83%; derived from Leonardite  
 Claims: Better root system; improves fertilization results; improves disease resistance; loosens tight soil

**Enersol**

Company: American Colloid Co., 1500 W. Shure Dr., Arlington Heights, IL 60004  
 Ingredients: 15% humic acid and humic-acid based (3%) fertilizers fortified with nutrients (6-14-4) or micronutrients; derived from North Dakota leonardite  
 Known Research: Weis (1986)

**Enersol SC**

Company: American Colloid Co. Agricultural Group, 1500 W. Shure Dr., Arlington Heights, IL 60004  
 Ingredients: Humic acid (65%)  
 Claims: Improves yields and quality  
 Remarks: Broadcast at 1-2 lb/A

**Enhance**

Company: National Ag Products Development, Inc., 1235 100th Street SE, Byron Center, MI 49315  
 Remarks: Multipurpose spray adjuvant

**ENKAMIC**

Company: Pharmco Laboratories Inc. for Aglink, Inc., Box 997, Alexandria, MN 56308  
 Ingredients: 24-0-3 derived from  $\text{NH}_4\text{NO}_3$  and  $\text{KNO}_3$  with micronutrients (1% Fe, 2% Mn, 0.08% Cu, 0.02% B, 0.08% Zn, 2.5% S)  
 Claims: Increases photosynthesis and plant metabolism; stimulates root development  
 Remarks: Apply at 1 lb/A at 6-leaf stage for corn.

**Enliven**

Company: Enliven Ag-Aid Products, Inc., P.O. Box 7147, Monroe, LA 71203  
 Ingredients: Culture of *Lactobacillus acidophilus* with minor elements added  
 Remarks: Used as seed treatment for several crops

**ENSAVE (XL)**

Company: En-Save Inc., 301 South 3rd St., Box 607, Grimes, IA 50111  
 Ingredients: Organically complexed secondary and micronutrients, proteins, protein hydrolyzates, peptides and amino acids, organic acids, diatomaceous earth  
 Claims: Stronger, healthier plants; better stands; reduced lodging  
 Remarks: Use as seed treatment at 2 oz/A

**Envy**

Company: National Liquid Fertilizer Corp., Chicago, IL  
 Ingredients: Is a 20-20-20 fertilizer made with urea, ammonium phosphate and potassium nitrate  
 Remarks: Apply foliarly to agronomic crops at 20 lb/A mixed with water

**eN-ZONE**

Company: Enviro Consultant Service, LLC, P.O. Box 1749, Evergreen, CO 80437 (also marketed through Bachmann Inc., West Des Moines, IA)  
 Ingredients: Multi-species of encapsulated nitrogen fixing bacteria  
 Claims: Can replace up to 120 lb N

**Enzyme Soil Activator**

Company: Conservation Chemistry Corp., 112 W. Wyoming Avenue, Las Vegas, NV 89102  
 Ingredients: Broad spectrum of enzyme preparations  
 Claims: Higher yields, increase soil microbes, more efficient fertilizer use  
 Remarks: Appears similar to Natur-All One-Step

**Eokomit**

Company: Frederick E. Palmer & Co., P.O. Box 261, Stn. "L", Montreal, Quebec, Canada  
 Ingredients: Apparently is a microbial complex  
 Claims: Increased yields  
 Remarks: Used as seed treatment and with watering

**Epsogrow**

Company: Kali and Salz, GmbH, Germany  
 Ingredients: 100% epsom salt  
 Claims: Enhances crop yield and quality  
 Known Research: Khan et al. (2000b); Khan et al. (2001)

**Ergostim, Ergistim**

Company: Montedison USA, Inc.  
 Ingredients: Thrazolidin-4-carboxylic acid, 5%; folic acid, 0.1%  
 Remarks: Plant growth regulator  
 Known Research: Oplinger et al. (1978); Weis (1980); Gupta and MacLeod (1984)

**Erth-rite**

Company: Zook and Ranck Inc., R#1, Gap, PA 17527  
 Ingredients: Composted conditioner with animal, mineral, plant and sea products with essential earth-conditioning bacteria  
 Claims: Inoculates the soil, stimulates N fixation, speeds decomposition, reduces insect infestations  
 Remarks: 400-1200 lb/A for field crops

**Essential**

Company: Growth Products, White Plains, NY  
 Ingredients: Humic acid, plant extracts, kelp extracts, sugars, hydrolyzed organic proteins, and wetting agents  
 Claims: Improves root growth and P utilization by plants  
 Remarks: A biostimulant  
 Known Research: Heckman (1995)

**Extend** (Possible alternative names: Slo-go, SRC 101)

Company: Kalo Laboratories Inc., Kansas City, MO 64114  
 Ingredients: Alkylene ethersulfate, aromatic sulfonate, polyhydric alcohol and aliphatic solvents, 43.2%  
 Claims: Increases N efficiency  
 Remarks: "Encapsulates" nitrogen to keep from loss; recently claimed to increase the rate N diffuses to zone of root absorption  
 Known Research: Vitosh and Hyde (1977); Herron and Witt (1978b); Lilly (1978); Malzer (1978); Missouri (1978b); Peterson (1978); Raines (1978); Randall (1978); Herron (1979); Keeney et al. (1979)

**FCI Power Unit**

Company: Town and Country Water Systems, Midland, MI  
 Ingredients: Magnets that attach to sprayers or planters  
 Claims: Improves herbicide effectiveness, improves fertilizer distribution

**Feast**

Company: Conklin Company, Inc., Valley Park Dr. & Hwy. 101, Shakopee, MN 55379  
 Ingredients: Low biuret urea, aqua ammonia, white phosphoric acid, potassium hydroxide; three primary grades are 9-18-9, 3-18-18, and 16-4-4; also have micronutrient formulations  
 Claims: Increases yields, aids in root development  
 Known Research: Penas (1983); Hall et al. (2002)

**Feiyuan**

Ingredients: A biological inoculant  
 Claims: Improves N use efficiency  
 Known Research: Lamond et al. (1997c)

**Fermalizer** (See Culbac)**Fertidyne**

Company: IBC Research Lab. Inc., 16 W. 61 Street, New York, NY 10023  
 Claims: Increased nutrient availability and yields  
 Remarks: Acts as a bacterial stimulant  
 Known Research: Mick (1961)

**Fertilaid**

Company: Apparently taken over by MicroKey Sciences, Inc., 9700 Richmond Ave., Suite 140, Houston, TX 77042  
 Ingredients: Nitrogen, 6%; organic matter, 40%; with 24 trace elements  
 Claims: Nutrient source and activator  
 Remarks: 300-2000 lb/A for field crops; not clear if this is also marketed as AgriKey  
 Known Research: South Dakota (1961); Herron and Witt (1978b)

**Fertilife**

Company: Chicago Stock Yards Compost Co., Union Stock Yards, Chicago IL 60609  
 Ingredients: Organic compost  
 Claims: Nutrient source and organic conditioner

**Ferti-Lite**

Company: DIAD Agricultural Services, Ltd., 3106 9th Ave. N, P.O. Box 1777, Lethbridge, Alberta, Canada, T1J 4K4  
 Claims: Slows nitrification; reduces N volatilization from vegetables; increases P availability and helps reclaim saline and alkali soils  
 Remarks: Apparently releases H<sub>2</sub>SO<sub>4</sub> when put in contact with water

**Fertilium**

Company: Soil-tone Corp., Plymouth, NC 27962  
 Ingredients: Apparently is an organic decomposition product containing organisms and hormones  
 Claims: Supplies all needed nutrients, improves structure, inoculates soil with N fixers and decomposers, stimulates growth  
 Remarks: 1-2 T/A worked into soil for field crops

**Fertimax**

Remarks: This is the overall fertility management program as recommended by Farm Guard Products and/or AGronics Inc. (See Clodbuster and Actival)

**Fish-Agra**

Company: Northeast Organics, Box 7, Beaver Dam Rd., Manchester-by-the-Sea, MA 01944  
 Ingredients: Concentrated organic fish hydrolysate, 4-1-1  
 Claims: Increases crop yield; stimulates microbes; increases fruit set; reduces stress  
 Known Research: Kelling and Speth (2000b)

**Fish Brand Fertilizer**

Company: Mark 21, Inc., P.O. Box 132, Sioux Falls, SD  
 Ingredients: 8-8-5 derived from fish, phosphoric acid, urea and KCl  
 Remarks: Apply 1.5 qt/A to corn at 4-8 inches and 2 weeks pretassel

**Floramate**

Bio-Line, Inc., 9201 Penn Ave. South, Suite 26, Minneapolis, MN 55431  
 Ingredients: Humate product derived from leonardite supplemented with 6 types of seaweed, a catalyst and a fatty acid polymer surfactant  
 Claims: Better plant growth; increased plant sugar and protein

**Flora-Stim**

Company: Kountry Marketing International, Hawkins, TX 75765  
 Ingredients: Contains B, 0.02%; Co, 0.0028%; Cu, 0.25%; Fe, 2.5%; Mn, 0.24%; Mo, 0.0005%; and Zn, 0.48%  
 Claims: Stimulates microbial activity, enhances disease resistance, increases quality and yields  
 Remarks: Micronutrient fertilizer used at 200 lb/A

**Floratine**

Company: ATS Research Inc., 5050 Poplar Ave., Suite 1722, Memphis, TN 38157  
 Remarks: Apparently related to ADDAMAX, Double, and RADIX

**Flourish**

Company: National Ag Products Development Inc., 1235 100th Street SE, Byron Center, MI 49315  
 Ingredients: 10-5-5 with micronutrients and cytokinins  
 Remarks: A fortified fish and seaweed fertilizer; apply 2-3 gal/A in row and 1 qt/A foliar

**Foliafeed**

Company: Atlantic and Pacific Research Inc., P.O. Box 14366, N. Palm Beach, FL 33408  
 Ingredients: Synergistic blend of fish solubles and liquid seaweed, 2.0-0.7-1.0 with small amounts of secondary and trace elements  
 Remarks: 1/3 to 1/2 gal/A for field crops

**Folian**

Company: Allied Chemical Corp. (now Honeywell), Box 131, Hopewell, VA 23860  
 Ingredients: 12-4-4 with 0.5% S  
 Claims: Increases yields and improves quality of vegetables  
 Remarks: Rain within 48 hrs after application will reduce the effectiveness of Folian  
 Known Research: Herron (1979)

**Foliar Plus**

Company: ProfitPro, LLC, 703 Marshall St., Albert Lea, MN 56007

Ingredients: Foliar spray 2-3-2

Claims: Improves plant vigor and pod set and seed fill on beans; larger ear girth and length on corn; better quality and re-growth on alfalfa

**Foliar Spray** (See IAT Foliar Spray)**Foliar X-Cyto**

Company: Conklin Company, Inc., Shakopee, MN

Remarks: Apply at 8 oz/A at green-up and after each cutting for alfalfa

Known Research: Hall et al. (2002)

**Folicote**

Company: Aquatrols Corp. Amer., 1432 Union Avenue, Pennsauken, NJ 08110

Ingredients: Refined wax emulsifiers and preservatives

Claims: Reduces water stress

Remarks: Transpiration minimizer

**FOLI-ZYME**

Company: Stoller Chemical Co., Inc., 8582 Katy Freeway, Suite 200, Houston, TX 77024

Ingredients: 15-2-0 with 3% Ca derived from urea phosphate, calcium monocarbamide and N-Hib Ca

Claims: Aids root growth, yield and quality

Remarks: Apply 0.5 gal/A every 10-14 days from 2-3 leaf stage to maturity, later sprays at 1-2 gal/A

Known Research: Hall et al. (2002)

**Fol-R Foliar Spray**

Company: Dionne Products, 1505 North Avenue, Norwalk, IA 50211

Ingredients: Contains high molecular weight proteins with Cu, 0.26%; Fe, 0.23%; Mn, 0.32%; and Zn, 0.33%

Claims: Stimulates growth, increases stress resistance, better quality and crop yields, increased flavor and protein content

Remarks: Diluted 1:100 and misted on plants averaging 4 to 6 oz/A

**Formula 181**

Company: C&E Products Inc., Rt. 3, LeMars, IA 51031

Ingredients: Trace minerals including Zn, Cu, Fe, Mn all at 0.4%; B, 0.025%; Co, 0.0009%; Mo, 0.0008%

Remarks: Dilute 1:39 and mist 1/2 gal/A of mixture

**Formula 7040**

Company: Recess Industries Inc., Box 2037, Falls Church, VA 22042

Claims: Higher yields and disease and drought resistance, less runoff, faster germination and initial crop growth

Remarks: Apparently is a wetting agent which influences surface tension

Known Research: Vitosh and Hyde (1977); Sunderman (1978); Lawless et al. (1981); Sunderman (1983)



**Formula 7052X**

Company: Recess Industries Inc., Box 2037, Falls Church, VA 22042  
 Remarks: Experimental product apparently similar to 7040  
 Known Research: Lawless et al. (1981); Sunderman (1983)

**Fortify**

Company: Western Sunburst Inc., 906 Carpenter Road, Suite C, Modesto, CA 95351  
 Ingredients: A 8-16-4 foliar macronutrient spray

**Fortune**

Company: Greater Yields International, P.O. Box 280, Verona, MS 38879  
 Ingredients: 0-40-40 + 1.5 S  
 Remarks: Use foliarly; supplement to normal fertilization

**Foundation RM**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772  
 Ingredients: Seaweed, humus, natural chelators, carbohydrates, and cytokinins  
 Claims: Promotes plant growth; helps build soil organic matter

**Fulcrum**

Company: Cargill Inc., P.O. Box 725, Elk River, MN 55330  
 Ingredients: (1-3-2) molasses-based fertilizer  
 Claims: Increases crop yield and quality  
 Known Research: Rosen and Birong (1998); Rosen et al. (1999); Kelling and Speth (2000a)

**Full and Lush**

Company: TransNational Agronomy LTD, 470 Market Street SW, Suite 101, Grand Rapids, MI 49503  
 Ingredients: Fortified fish and seaweed fertilizers with grades such as 10-8-8 and 6-14-6

**Fulvic Electrolyte** (See EC&S Bio-Stimulant)**Fung-AID**

Company: Stoller Chemical Co., 8285 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 10% Ca and 0.5% B derived from calcium sucrose and sodium borate  
 Claims: Increases disease resistance  
 Remarks: Used as supplement to fungicide sprays (tank mixed)

**Genesis II** (See Agralife)

Known Research: Hileman (1976); Illinois (1977); Brian (1978); Lilly (1978); Weaver (1979); Tiedemann et al. (1980)

**Genesis Soil Rite**

Company: Frontier Labs, Inc., P.O. Box 474, Brandon, SD 57005  
 Ingredients: Calcium, 22.56%; boron, 0.305: derived from sugars, lime, and blend of herbs and spices  
 Known Research: Khan and Nelson (2004)

**Germ 'N Boost**

- Company: Bio/Syn Research Assoc., P.O. Box 451, West Des Moines, IA 50265  
 Ingredients: Contains three types of bacteria: (1) N fixers; (2) decomposers; (3) enzyme formers with trace elements added  
 Claims: Faster germination, reduces heat units needed for maturity, increases stress resistance, increases yields and quality  
 Remarks: Used as seed treatment; sometimes uses Harvest-Mor as prefix in name

**Glacial Grow**

- Ingredients: Appears to be ground granite with 15 elements listed as being present as oxides or dioxides including Si, 32.1%; Fe, 1.2%; and Al, 14.5%  
 Claims: Stronger roots, less prone to shock, promotes N fixation, provides balanced diet

**Glorion**

- Company: Soil Builders International Corp., 33 W. 42nd Street, New York, NY  
 Ingredients: 4-8-8 in a carbon base with 15 trace elements  
 Claims: Makes fertile soil out of sand and clays; fertilizer substitute  
 Remarks: This is apparently a decomposition product

**Goemar**

- Ingredients: Auxins, cytokinins, gibberellins, 18 amino acids and 7 vitamins derived from seaweed  
 Known Research: Kelling (1991); Edmeades (2002)

**Golden Bio**

- Company: Golden Bio, Inc., Box 171, Concordia, MO 64020  
 Ingredients: Contains unspecified amounts of humic acid  
 Claims: Stimulates soil microbes; reduces germination time; increases available P, pH, organic matter and base saturation; improves soil texture; increases yields  
 Remarks: Biological growth activator with humid acid

**Golden Cal**

- Company: Golden Plant Food, Ltd., Box 171, Concordia, MO 64020  
 Ingredients: Apparently contains glucoheptomic acid derived from natural sugar with nitrate nitrogen and calcium  
 Claims: "Designed to help gain access to soil calcium"  
 Remarks: Indicates 1-gallon equivalent to need for 500 lb/A CaCO<sub>3</sub>

**Golden Plant Food**

- Company: Golden Plant Food, Ltd., Box 171, Concordia, MO 64020  
 Ingredients: Variety of fertilizer grades including 9-18-9, 3-18-18, 10-10-10 and 16-8-8  
 Remarks: Non-toxic, non-corrosive fertilizer

**Golden X Soil Culture**

- Company: Southern Biochemical Corp., 2077 W. Wheeler Street, Drawer 1040, Aransas Pass, TX 78336  
 Ingredients: Strain of naturally occurring soil organisms (asymbiotic N fixer, *Aspergillus oryzae*)  
 Claims: Stimulates germination and root development and reduces need for fertilizer  
 Remarks: Applied as seed coat (1 cup/bu) or root dust; no specific organism identified  
 Known Research: Grabe et al. (1988)

**GoldStart**

Company: Nutra-Flo Co., 1919 Grand Ave., Sioux City, IA 51106-5708

Claims: Young seedlings can emerge stronger; plants move quickly through vegetative stage, they mature faster

Remarks: Diamond is 100% orthophosphate while GoldStart is “high” in orthophosphates

**Granite** (Generic ground rock)

Claims: Source of K and other nutrients

Known Research: Coroneos et al. (1996); Hinsinger et al. (1996)

**Gran-Life Rock Dust**

Company: Gran-Life Products, Rt. 4, Box 210, Long Prairie, MN 56347

Claims: Stimulates microbe and plant growth; “enhances electromagnetic properties which stimulate soil fertility;” improves pest resistance

Remarks: “A living rock dust which reestablishes the polarity of soils”

**Greenbelt 66**

Company: Ness Environmental , 4305 North Garfield, Suite 237, Midland, TX 79705

Ingredients: Naturally occurring humate

Claims: Returns nutrients to soil; activates soil organisms; increases soil moisture holding capacity

**Green Magic**

Company: Agro Chem Inc., 11150 Addison, Franklin Park, IL 60131

Ingredients: 20-0-2 from  $\text{KNO}_3$ , urea,  $\text{NH}_4\text{NO}_3$  and  $\text{K}_2\text{SO}_4$  with small amounts of micronutrients from hemlock bark extract plus other poly organic complexes

Claims: Complete feeding program for lawns

Remarks: Apply 1 gallon to 2500 ft<sup>2</sup> and repeat every 6 weeks

**Greensand**

Ingredients: Mined sand-sized particles of glauconite containing up to 8.6%  $\text{K}_2\text{O}$  and traces of other nutrients

Claims: Source of K, improves soil moisture and nutrient holding capacity

Known Research: Tedrow (2002); Heckman and Tedrow (2004)

**Greenworld**

Company: Greenworld Products Corporation, 401 N. 3rd St., 676 Designes Guild Place, Minneapolis, MN 55401

Ingredients: 8-8-8 foliar fertilizer with fish and seaweed; derived from fish, seaweed, phosphoric acid, KOH, and urea

Claims: Increased yields; more efficient nutrient use; accelerates photosynthetic activity; increases disease and insect resistance

Remarks: According to company representative, this company bought out Carpole’s Inc. Apply at 1 qt/A 7-10 days before tasseling for corn; other crops at similar rate

Known Research: Farber (1993); Kelling (1993)

**Gringo**

Company: Iron Products Inc., P.O. Box Drawer 1236, 461 11th Street, Douglas, AZ 85607

Ingredients: Derived from ferrous sulfate and other sulfates (Fe, 4.5%; S, 4.5%) with small amounts of Mg, Mn, Zn, and Cu

Claims: Higher yield, germination, and quality; faster maturity; increases nutrient availability

Remarks: pH 2-4; applied at about 7 gal/A

**Gro-Coat**

Company: Custom Chemicides, P.O. Bxo 11216, Fresno, CA 93772  
 Ingredients: 2% S, 2% Mn, 2% Zn, 0.005% Mo in organic complex  
 Claims: Improves the soil for germinating seeds by coating the seeds with nutrients  
 Remarks: Intended as a seed treatment at 3-6 oz/A

**Gro-Green**

Company: H.D. Campbell Co., Rochelle, IL 61068  
 Ingredients: Several formulations of macro- and micronutrient mixtures including 9-18-9, 20-20-20, and 20-30-10, with Mg, Fe, S, Cu, Zn, Co, Mo, Mn, and B  
 Claims: Sprouts faster, higher yields, better roots, retards wilting  
 Remarks: All are 100% soluble; program for corn calls for 50 lbs/A of 20-30-10 as total fertilizer program

**Gromor** (See Pennasoil)**Growers**

Company: Growers Nutritional Solutions, Milan, OH  
 Remarks: Apply at 2 gal/A at green up and 2 days after each cutting for alfalfa mixed with 0.2 gal/A vinegar  
 Known Research: Hall et al. (2002)

**Growmor**

Company: Growmor Chemicals, Ltd., Box 321, London, Ontario, Canada  
 Ingredients: 7-14-7 with Mg, S, Co, Fe, Mn, B, Cu, Zn, Mo and vitamin B1; also available as a 9-18-9  
 Claims: Higher yields and better quality, germination and root system  
 Remarks: Corn program calls for 5 gal/A with seed and 3 gal/A foliar sprayed twice

**GroZyme** (Also identified as Z93; label identical to Lescozyme; see AgroPlus)

Company: Manufactured by AgroPlus Inc., P.O. Drawer J, Hawkins, TX; distributed by Ag Spectrum Co., P.O. Box 215, 602 First St., DeWitt, IA 52742  
 Ingredients: Ferment product from sugar, molasses, malt, yeast, and kelp with advertised amounts of micronutrients (0.02% B, 0.0005% Co, 0.05% Cu, 0.10% Fe, 0.05% Mn, 0.0005% Mo, 0.05% Zn). Draft label also shows 0.001% adenine, 0.0005% indolebutyric acid and 0.0005% indoleacetic acid. Another company (Enzyme Industries, Lima, OH) using product name Grozyme also lists 5.5% sodium tetradicyl sulfate, conylphenyl polyglylene glycol, and ether with the ferment  
 Claims: Increases soil microbial populations and their activity; mobilizes nitrogen found in soil organic matter; enhances root growth; prevents denitrification and nitrogen conversion; increases yields; decreases the need for nitrogen fertilizer  
 Remarks: Use 12.5 oz/A; company literature indicates it is a second-generation product of AgroPlus  
 Known Research: Rice and Lamond (1990a; 1990b; 1991); Edmeades (2002)

**Guardian** (See DCD)

Company: Conklin Co., Inc., 551 Valley Park Dr., Shakopee, MN 55379  
 Ingredients: 66% nitrogen from dicyandiamide  
 Claims: Nitrification inhibitor  
 Remarks: Use 2-3 lb/10 gal nitrogen fertilizer solution; not to exceed 8-10 lb Guardian/A; 3-4 lb/10 gal with broadcast applications; SKW Trostburg has marketing agreement with Conklin

**Guardian Adjuvant**

Company: J and J AgriProducts and Services, Inc., 220 S. Second St., Dillsburg, PA 17019

**Gulf Menhaden Condensed Fish Solubles** (See Liquid Fish)**H Plus** (Alternative name: Formula 181)

Company: C&E Products, Box 182A, RR3, LeMars, IA 51031

Ingredients: Same guaranteed analysis as Formula 181 except ingredients also list kelp, dried whey, lactic acid and molasses

Remarks: Rate for corn 1 gal/40 A

Known Research: Kansas (1975a; 1975b; 1976)

**Harvest-Mor** (Is apparently the line of products that includes Crop Residue Digester, CAL/SPIN, Soak 'N Store, Germ 'N Boost, Stress-Plus, and Sun-Net Spray; see individual product for more information)

Company: Bio/Syn Research Associates, 1005 32nd St., West Des Moines, IA 50265

**Harvest Plus**

Company: Stoller Chemical Co. Inc., 8582 Katy Freeway, Suite 200, Houston, TX 77024

Ingredients: A 14-4-6 fertilizer with Mg 2%, S 5%, B 0.1%, Cu 0.1%, Fe 1.5%, Mn 2%, Mo 0.02%, and Zn 2%

Claims: Designed to prevent nutrient deficiencies

Remarks: For field crops apply 1 qt/A at 4-leaf stage and 0.5 gal/A every 14 days thereafter until maturity; designed to supplement soil applied fertilizer

**Herman 2**

Company: Taino Technology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286, Cheney, WA 99004

Claims: Designed to accelerate digestion of crop residues

Remarks: Sprayed at 50 g/A; not to be used on turf

**High-NRG N**

Company: Agro Culture, 3026 W. M-21, P.O. Box 150, St. Johns, MI 48879

Ingredients: 27-0-0 with sulfur and iron

Claims: Higher efficiency of use than conventional N fertilizers; can use 40% less N

**HI-ZYME**

Company: Electrozyme Corp., P.O. Box 831, Elkhart, IN 46514

Ingredients: Organic matter, 7.16%; N, 0.08%; S, 0.011%; P, 0.011%; K, 0.055%; and small amounts of Mg, Ca, Na, Fe, Al, Mn, B, Cu, and Zn

Claims: Flocculation of soil, free movement of moisture, increase nutrient availability, better root penetration, greater water retention

Remarks: Termed a stabilized enzyme process

**Hoover's Organic Blend**

Company: Hoover Soil Service, Gilman, IL 60938

Ingredients: Apparently an organic soil conditioner

Claims: Neutralizes soil; improves quality; increases yields; holds nutrients, promotes microorganisms

**HOP Soil Conditioner**

Company: Humus Organic Products Inc., Box 105, Hampton, IA 50441  
 Ingredients: Humus

**Humabase**

Company: MVV Inc., 1670 E. 1300 Street, Salt Lake City, UT 84105  
 Ingredients: Humic acid, 15%; humus, 30%

**Humaide**

Company: Ag Connection Sales, Inc., R.R. 1, Box 86A, Seneca, KS 66538  
 Ingredients: Humic acids derived from leonardite ore  
 Claims: Increases uptake of nutrients by plants

**Humate** (Possible alternative name: Humite)

Ingredients: Granular mined organic deposit  
 Remarks: 250-500 lb/A for field crops  
 Known Research: Bauder (1976); Lee and Bartlett (1976); Frank and Anderson (1978);  
 Lawless et al. (1981)

**HuMate**

Company: Medina Agriculture Products Co. Inc., P.O. Box 309, Hondo, TX 78861  
 Ingredients: Humic acid concentrate 12%  
 Claims: Makes phosphate and iron more available; chelates metals; stimulates roots, germination; buffers salts; reduces burning, aids in rapid translocation of nutrients  
 Remarks: A fertilizer enhancer; use 1 pt to 1 qt/A with liquid fertilizers

**Hume-Aide**

Company: Larson Century Ranch, P.O. Box 1982, Clarkston, WA 99403  
 Ingredients: Liquid mixture of humic acids, cultured soil bacteria, and micronutrients biologically extracted from leonardite, green sands, montmorillonite and other deposits  
 Claims: Helps retain soluble fertilizers in the root zone; stimulates germination, early growth; buffers salinity and toxicity of commercial fertilizers  
 Remarks: Use at 1-2 qt/A

**Humi-Phos** (Also HumiPhos N--contains urea)

Company: Glacier Natural Products & Research Corp., Box 569, Polson, MT 59860  
 Ingredients: 0-1-0 from leonardite and rock phosphate  
 Claims: Nourishes plants, conditions soil  
 Known Research: Bauder (1976)

**Humisol**

Company: Germes, Ukraine  
 Ingredients: Humates, fulvoacids, vitamins, natural phytohormones, micro- and macro-elements  
 Claims: Increases crop yield; suppresses diseases  
 Remarks: A liquid product from worm-processed manure

**Hungavit** (Several different products for various crops; i.e., HungavitA for grapes and fruit trees)

Company: Hungavit-Mexico, SA. de CV, 2284 Francisco Ascencio Blvd, Puerto Vallarta, Mexico CD 48300 (manufactured by BioLife 2000, Inc., 8360 Keszthely, Ady Endre)

Ingredients: Organic humus and acids; composted plant particles and minerals

Claims: Helps plants optimally use available nutrients

Remarks: Apply 0.54 gal/A two or three times

**Hybro-tite**

Company: Hybro-tite Corp., P.O. Box 527, Lithonia, GA 30058

Ingredients: Primarily SiO<sub>2</sub> (73%); Al<sub>2</sub>O<sub>3</sub> (14.7%); Fe<sub>2</sub>O<sub>3</sub> (1.2%); MgO (0.7%); K<sub>2</sub>O (4.7%) and smaller amounts of others

Claims: A long-term soil conditioner and trace element source

Remarks: Ground granite meal, an ingredient of Erth-rite

Known Research: Walsh (1965)

**Hydrogen Peroxide**

Company: ECH<sub>2</sub>O<sub>2</sub>, Inc., P.O. Box 126, Delano, MN 55328

Ingredients: 35% food-grade hydrogen peroxide

Claims: Enhances seed germination and foliar feeding

Remarks: Use 16 oz/A in 20 gallons of water

**Hydro PAM**

Company: Stockhausen, 2401 Doyle St., Greensboro, NC 27406

Ingredients: 90% sodium acrylate/acrylamide copolymers

Claims: Reduces erosion by binding soil particles

Remarks: Apply 3 lb/A

**Hydrophos**

Company: Phosyn Plc., Wellington Rd., The Industrial Estate, Pocklington, York, YO4 2NR, United Kingdom

Ingredients: Liquid phosphate containing 44% P<sub>2</sub>O<sub>5</sub>, 10% MgO, 7.4% K<sub>2</sub>O

Claims: Promotes uniform tubers, bulking and size; delays foliage dieback; reduces tuber disorders

**Hydro-Source**

Company: Distributed by Mark 21, Inc., 1403 N. Cleveland, Sioux Falls, SD 57103

Ingredients: Synthetic cross-linked polyacrylamide

Claims: Reduces fertilizer leaching; increases germination; improves soil conditions

Remarks: Super absorbant; use 5-15 lb/A when drilled or up to 80-400 lb/A broadcast

**Hynite**

Company: Hynite Corp., P.O. Box 219, South Milwaukee, WI 53172

Ingredients: Natural organic nitrogen (12%) from leather tankage

Claims: Improves aeration and water retention; feeds soil organisms; season-long release of nitrogen

Remarks: Has high chrome content, 1.1-2% Cr

**IAT Foliar Spray** (Alternative name Symspray)

Company: Integrated Agri Tech Inc., 3315 Auburn Drive, St. Joseph, MO 64506

Ingredients: Organic solution of cytokinin, microminerals and nitrogen

Claims: Reduces stress, stimulates fruit set, mobilized nutrients in plant

Remarks: Apply 1 gal/25 acres to corn at 8-10 leaf stage; “developed and tested by Agro-K Corp. as Symspray”

**IAT Residue Treat** (See Symbex)

Company: Integrated Agri Tech Inc., 3315 Auburn Drive, St. Joseph, MO 64506

Ingredients: Microbial culture of *Actinomyces thermophilus*, *Azotobacter chroococum*, *Mixobacteria* sp., Streptomyces, Fulvourides and *Bacillus* sp. in a whey base

Claims: Increases yield and quality

Remarks: “Developed and tested by Agro-K Corp. as Symbex”

**IAT Seed Treat** (Alternative name Symcoat)

Company: Integrated Agri Tech Inc., 3315 Auburn Drive, St. Joseph, MO 64506

Ingredients: No specifics; blend of cytokinins and micronutrients

Claims: Aids germination, increases yields

Remarks: “Developed and tested by Agro-K Corp. as Symcoat”

**IAT Soil Treat** (Alternative name Symbooster)

Company: Integrated Agri Tech Inc., 3315 Auburn Drive, St. Joseph, MO 64506

Ingredients: No specifics given; contains plant growth regulators, enzymes and micronutrients

Claims: Increase yields and microbial activity, improved nutrient uptake

Remarks: “Developed and tested by Agro-K Corp. as Symbooster”

**Ignite**

Company: National Ag Products Development, Inc., 1235 100th Street SE, Byron Center, MI 49315

Ingredients: Specific organisms not given; also contains Zn, Cu, Mn, Mo and Fe, extract of kelp, yeasts, and humates, starch included

Claims: Faster germination, higher yields

Remarks: A multicrop seed inoculant, apparently can be used with corn, wheat and legumes

**IMN (International Micro Nutrients)**

Company: Agri-products Division of Beatrice Foods

Ingredients: Nevada mineral deposit containing 8% K, 2% Ca, 12% S, 3% Fe; smaller amounts of six other elements

Known Research: Schulte (1981)

**IM-PRUV-ALL** (Several product formulations)

Company: IM-PRUV-ALL Agriculture Inc., 703 Ramona Avenue, Modesto, CA 95350

Ingredients: Several product formulations including 6-2-2 and micronutrients

Claims: Improved quality, builds complete soil fertility, earlier and more uniform maturity, improved tilth and humus

**In Bounds**

Company: Ag Spectrum, P.O. Box 215, 428 East 11th St., Dewit, IA 52742

Ingredients: Liquid ammonium sulfate

Claims: To be used as a spray adjuvant; enhances uptake of most applied herbicides



**Increase 1A and 2C**

Company: National Ag Products Development, Inc., 1235 100th Street SE, Byron Center, MI 49315

Claims: Increases yields; stimulates nutrient uptake; increases cell division

Remarks: Increase 2C is for corn at 4 oz/10 acres, whereas 1A is for most other crops at 2 lbs/10 acres; apply as fine mist

**Indicate 5**

Company: Brandt Consolidated, Pleasant Plains, IL 62677

Ingredients: 49% wetters, spreaders, penetrants; 34% buffers

Claims: Adjuvant for herbicides, insecticides, fungicides, and plant hormones

**Initiate**

Company: Loveland Industries, Inc., P.O. Box 1289, Greeley, CO 80632-1289

Claims: Promotes earlier nodulation; improves yield of soybean

Remarks: Apply 1 oz/A as seed treatment

**Insta-gro**

Company: Insta-gro International Inc., Caledonia, OH 43314

Ingredients: Several formulations including 9-18-9-1, 3-18-18-1 and 10-10-10-1

Remarks: Liquid plant food

**Ironite**

Company: Ironite Products co., Humboldt, AZ 86329

Ingredients: Pyrite and iron sulfate containing 1% N, 1% Ca, 1% Mg, and 5% S with small amounts of other nutrients

Claims: Improves root system; helps plants resist disease

**J and J Soil Conditioner**

Company: J and J Agri-Products and Services, 220 S. 2nd Street, Dillsburg, PA 17019

Ingredients: Ammonium laureth ether sulfate 48%

Claims: Loosens soil and aids downward movement of water; reduced soil crusting; better crop germination and emergence

Remarks: Apply at 4 oz/A

**Jackpot**

Company: Bio Huma Netics, Chandler, AZ

Ingredients: Combination of trace elements complexed with organic acids

Claims: Used with potatoes for combination of increased tuber size and solids and vine killer

**JumpStart**

Company: Philom Bios, #318-111 Research Dr., Saskatoon, Sask, Canada S7N 3R2

Ingredients: Wettable powder containing *Penicillium bilaii*

Claims: Promotes better use of phosphates and quick emergence; early vigor; increased stress tolerance

Remarks: Do not use JumpStart on soils high in phosphates or on soils that do not bind phosphates; apply to seeds

**Jump Start**

Company: Agro-K Corporation, 36 37th Ave. NE, Minneapolis, MN 55421  
 Ingredients: 2.5% Ca  
 Remarks: Is to be used as a root dip for fast establishment of transplants

**Kaylorite**

Company: Kaylorite Corp., Dunkirk, MO  
 Ingredients: Glaucanite greensand containing 5-8% K<sub>2</sub>O, 0.5-1% P and small amounts of 20 other elements  
 Claims: Nutrient source for remineralizing and rejuvenating soils  
 Remarks: 300-400 lb/A in row or 1000 lb/A broadcast recommended

**Kb**

Company: Jednak Floral Co., P.O. Box 1917, Columbus, OH 43216  
 Ingredients: Humic colloid suspension containing low concentrations of nutrients  
 Claims: Controls soluble salts and makes fertilizers more efficient  
 Remarks: Promotional material indicates it contains abundance of colloids

**Kelpac**

Ingredients: Derived from South African seaweed (*Ecklonia maxima*)  
 Known Research: Edmeades (2002)

**Kel-Plus**

Company: Dawn Corp., Denison, IA 51442  
 Ingredients: Extract of kelp  
 Claims: Aid in root development and plant growth  
 Remarks: Growth promotion factor not yet positively identified

**Keylate Ca**

Company: Stoller Enterprises, Inc., 8580 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 3% chelated Ca  
 Remarks: For field crops, apply 1 qt/A

**Keylate (I Superstarter)**

Company: Stoller Enterprises, Inc., 8580 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 1% Mg, 1% Cu, 1% Mn, 4% Zn in chelated form  
 Remarks: For field crops, apply 1 qt/A

**Keylate-M (II Super Starter)**

Company: Stoller Enterprises, Inc., 8580 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 2% Ca, 2% Mn, and 2% Zn in chelated form  
 Remarks: For field crops, apply 1 qt/A  
 Known Research:

**Kicker**

Company: First Amendment Corp., P.O. Box 30, Arimo, ID 83214  
 Ingredients: Unspecified amounts of boron, copper, iron, manganese, nitrogen, phosphorus, potassium, sulfur, zinc in liquid form  
 Claims: Better water penetration, better quality crops; supports crops by promoting microorganism growth  
 Remarks: Apply 1 qt/A for field crops

**Kick-Off**

Company: Distributed by Ag Spectrum Co., P.O. Box 215, 602 First St., DeWitt, IA 52742  
 Ingredients: Liquid chelated micronutrient mix with 1% S and Zn, 0.025% Co and Mo, 0.25% Cu, 0.5% Fe and Mn  
 Claims: Promotes stronger roots and abundant yields  
 Remarks: Apply 2-4 lb/A in row-directed spray when plants are 4-12 inches high

**King Fish**

Company: K.C. Mattson Co., 524 S. Rosemead Blvd., Pasadena, CA 91107  
 Ingredients: Homogenized liquid fish; no guaranteed analysis given  
 Claims: Earlier germination, better roots, controls rot, "crumbles" soil, improves quality  
 Remarks: "Liquid guano"

**KK Organic Soil Builder**

Company: Watertown, WI 53094  
 Ingredients: California kelp and fish solubles  
 Claims: Neutralizes both acidic and alkaline soils; more available nutrients  
 Remarks: For corn use 100-150 lb/A in planter and 160 lb/A sidedressed

**KOH Humic Concentrate**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Potassium hydroxide extraction of mined humates

**Kozgro**

Company: Kozgro, Inc., 208 Ellen Street, Boise, ID 83704  
 Ingredients: Blend of organic plant foods and nutrients along with fish emulsion and kelp  
 Claims: Aids in germination; improves quality of fruit and vegetable plants; acts as a wetting agent

**Kozgro's AFB**

Company: Kozgro, Inc., 20272 Ward Rd., Caldwell, ID 83605  
 Ingredients: Contains active humic acid  
 Claims: Improves soil aeration and water penetration; increases nutrient availability; helps control nematodes  
 Remarks: Suggested rates 3-16 oz/A; should not be mixed with water at 1:9 ratio as this creates a "rhythmic dilution"

**Lactobase** (Labeled identically to Seaquist)

Company: Ferma-Gro Corp., Storm Lake, IA 50588  
 Ingredients: High molecular weight proteins and amino acids  
 Remarks: Plant growth activator

**LA-Water Normalizer** (See Catalyst Altered Water)

Company: C.A.W Industries, Rapid City, SD  
 Ingredients: Apparently as extract of South Dakota lignite  
 Claims: Acts as a growth conditioner; cuts fertilizer need in half

**Leonardite**

Company: Prairie States Inc., 216 3rd Avenue, Enderlin, ND 58027

Ingredients: Oxidized lignite

Claims: Adds organic matter; stimulates growth

Known Research: Aitken et al. (1964); Hammond et al. (1964); Egli and Pendleton (1965); O'Donnell (1973); Bauder (1976); Agvise (1979)

**Lescozyme** (See GroZyme)

Company: Lakeshore Equipment and Supply Co., Elyria, OH 44035

Remarks: Identical label to GroZyme with the name changed

**Lifeline**

Ingredients: Mixture of humates, rock phosphate, gypsum and protein nitrogen, 1.3-2.2-0.5-4.3

Claims: Nutrient release agent, improve water relations, reduce erosion, reduce insect and weed infestations

**Like Wild** (See Saturex)**Liquid Bacteria Concentrate, Nutrapathic**

Company: Parametric Associates, Inc., 10934 Lin-Valle Dr., St. Louis, MO 63123 (marketed by Williams Soil Service, Paullina, IA)

Ingredients: Blend of high enzyme-producing bacteria

Claims: Detoxifies soil

**Liquid Blue**

Ingredients: Several grades of liquid fertilizer including 12-31-14, 10-20-30, 25-15-10, 25-0-25, 12-45-0, 28-18-8, 20-20-20 and 30-10-10; all contain micronutrients including 4% S, 0.02% B, 0.05% Cu, 0.10% Fe, 0.05% Mn, 0.0009% Mo, 0.05% Zn

Claims: More efficient utilization by plants

**Liqui-Cal**

Company: Alpine Plant Foods, Inc., 3185 Cline Rd., Corydon, IN 47112

Ingredients: 8-0-0-8 Ca as a Ca-saturated organic chelating agent

Remarks: Use 0.5 to 3 gal/A or 1 gal for each 500 lb of CaCO<sub>3</sub> required

Known Research: Whitney et al. (1989)

**Liquid Calcium**

Company: National Ag Products Development, Inc., 1235 100 Street SE, Byron Center, MI 49315

Ingredients: Glucoheptonic acid carrier of calcium

Claims: Corrects calcium deficiency

Remarks: 1 gal supplies as much Ca as 500 lb lime; suggests can be used as a lime substitute

**Liquid Fish** (Gulf Menhaden Condensed Fish Solubles)

Company: Liquid Fish, Inc., Rt. 2, Box 84, Bonduel, WI 54107

Ingredients: 5% N, 0.56% P, 1.5% K with variety of other elements, amino acids, and vitamins listed

Claims: Substitutes for standard fertilizer program; use 33% normal fertilizers first year

Remarks: Typical recommendation includes 1 gal/A soil applied plus foliar applications

**Liquid Humas**

Remarks: Fertilizer enhancer which makes P and Fe more available; stimulates roots and improves germination

**Liquid Iron +**

Company: Colorado International Corp., Commerce City, CO 80022

Ingredients: Fe (5.96%); Cu (0.16%); Zn (0.09%); S (3.84%) in chelated forms

Claims: Iron source and improved fertilizer efficiency

**Liquid Lime**

Company: S and G Chemicals, 10036 Connell Street, Overland Park, KS 66212

Ingredients: Trihydroxy-glutaric acid (20%); CaO (4%); organic Ca complex (3%); deionized water carrier (73%)

**Liqui-Til**

Company: Patterson Chemical Co., 1400 Union Avenue, Kansas City, MO 64101

Ingredients: Trihydroxy glutaric acid (20%); organic Ca complex (8%)

Claims: Neutralizes pH in alkaline soils, improves water penetration and retention, increases crop yields, reduces compaction

Remarks: "A gypsum substitute soil conditioner"

**L.O.C.**

Company: Amway Corp., 7575 E. Fulton Road, Ada, MI 49355

Ingredients: Palm oil soap

Known Research: Stone (1982)

**Lomus**

Company: Agro-mates, Inc.

Ingredients: "Conditioned" humic acids to make water-soluble; from N.M. leonardite

Claims: Restore humus; improve tilth, increase moisture retention, nutrient uptake, rooting and yield, provide longer shelf life

Remarks: "Designed to restore humus and supplement certain micronutrients"

**MAC (Manure Ammonia Control)**

Company: Essential Minerals, Inc., 30400 Telegraph Rd., Suite 308, Birmingham, MI 48010

Ingredients: Ground limestone

Claims: Eliminates ammonia volatilization

**Magna Gro**

Company: MagnaGro International, Inc., Box 261, 911 N. First St., Lawrence, KS

Ingredients: Extracts of bacteria, yeast, and fungi polycoferment that includes 0.15% alpha keto acids, 6.6 ppm gibberellic acids, 12.9 ppm indoleacetic acid, 9 ppm indolebutyric acid, 10% humic acid and 8% polysaccharide complexes

Claims: Stimulates microbes, root growth, and early plant development; reduces stress; less fertilizer needed

Remarks: Use at 1 gal/10 acres

**Magnet** (See AmiSorb; this is the name used for vegetable label)

**MAN-AN-SO Micro-Gran**

Company: Man-An-So Corp., 923 N. 2nd Street, Ames, IA 50010

Ingredients: Contains Ca (16%); Mg (0.5%); S (14%); Co (0.006%); Cu (0.1%); Fe (0.15%); Mn (0.2%); Zn (2.0%)

Claims: Secondary and micronutrient source

**Manu-Rx**

Company: Pro-Ag Inc., 2072 E. Center Circle, Minneapolis, MN 55441

Claims: Manure composting aid

**Maxicrop**

Company: Maxicrop, USA Inc., P.O. Box 964, Arlington Heights, IL 60006

Ingredients: Liquefied seaweed; no detailed contents given

Claims: Increases crop yields and disease, frost and insect resistance

Remarks: 3 gal/A for corn

Known Research: Edmeades (2002)

**Medina**

Company: Medina Agricultural Products Co., Box 309, Hondo, TX 78861

Ingredients: Contains Mg (0.5%); Fe (0.1%); Zn (0.05%); other specifics not given

Claims: Increase yields and quality, improve soil physical conditions, more efficient use of fertilizer, and faster breakdown of chemical and crop residues

Remarks: Promoted as soil activator, restores natural productivity

Known Research: Weaver et al. (1974); Murdock et al., cited in Overdahl (1975); Randall, cited in Overdahl (1976); Roth (1976, 1977); Weaver (1979); Haby et al. (1980); Lessman and McCutchen (1980); Kelling et al. (1988f)

**Menefee Humate**

Company: Earthgreen Products Inc., 8222 Doughas Ave., Suite 100, Dallas, TX 75225

Ingredients: Freshwater humate; 35% humic acid, 35% organic matter, 35% C; small amounts (<1%) of other nutrients

Claims: Increases nutrient uptake; stimulates soil microorganisms

**Messenger**

Company: Stoller Chemical Co., 8582 Katy Freeway, Houston, TX 77024

Ingredients: 24% Ca

Claims: Increases yield, root systems, product quality, and maturation of crop

Remarks: Apply at 0.4 lb/A dissolved in 40 gal/A; is promoted as a calcium supplement

Known Research: Oplinger (1990b)

**Messenger**

Company: Eden Bioscience, 3830 Monte Villa Pkwy., Suite 100, Bothell, WA 98021

Ingredients: Based on a naturally occurring harpin protein

Claims: Increases yield; improves plant health and vigor; enhances nutrient uptake by increasing rate of photosynthesis; reduces disease

Remarks: For use on potatoes

**Miagra** (Several products including soil conditioner, trace element fertilizer and pH changer)

Company: Miagra Inc., 2762 S. Sheridan Road, Box 526, Stanton, MI 48888

Ingredients: Soil conditioner: 48% ammonium alkyl ether sulfate

Claims: Allows water to penetrate, reduces runoff and erosion, higher yields

Known Research: Vitosh and Hyde (1977)

**Micro 500**

Company: Agro-Culture Liquid Fertilizer, 3026 W. M-21, P.O. Box 150, St. Johns, MI 48879

Ingredients: Combination of micronutrients

Remarks: Apply at 2 qt/A

**Micro-Ag Seed Life**

Company: Taino Technology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286, Cheney, WA 99004

Ingredients: A low-salt, NPK plus chelated micronutrient fertilizer

Remarks: Apply 1.6 oz/100 lb seed as seed treatment

**Microbase** (Several products with varying nutrient analyses)

Company: MVV Inc., 1670 E. 13th Street, Salt Lake City, UT 84102

Ingredients: Nutrient analyses vary but usually contain Ca, Mg, S, Fe, Mn, and Zn

Remarks: Apparently are specialized nutrient sources

**Micro-Clear**

Company: Taino Technology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286, Cheney, WA 99004

Remarks: A live microbe product to apply to lakes, ponds, etc. to clear algae

**MicroCN**

Company: TerraMax, Inc., 16905 Aberdeen St., N.E., Ham Lake, MN 55304

Ingredients: Iron, 0.1%; copper, 0.05%; manganese, 0.05%; zinc, 0.05%, various microorganisms

Claims: Includes microorganisms that help control soybean cyst nematodes, breaks down chlorinated hydrocarbons and plant residue; aids in establishing a healthy soil environment

**Micro-Lite**

Company: Micro-Lite Corp., Toronto, KS 66777

Ingredients: 20 elements listed including Si (20.62%); Mg (12.10%); Fe (5.25%); Al (3.1%); Ca (6.52%); K (2.4%); P (0.38%)

Claims: Balanced nutrient source

Remarks: "A fine grained vermiculite ore;" recommended at 250 lbs/A broadcast

Known Research: Brown (1975)

**Micromate NS Magnesium**

Company: Stoller Enterprises, Inc., 8580 Katy Freeway, Suite 200, Houston, TX 77024

Ingredients: 7% N, 16% S, 17% Mg

**Micro-Min**

Company: Anvil Mineral Mining Corp., Bay Springs, MS 39422  
 Ingredients: Montmorillonite containing B (0.02%); Co (0.0028%); Cu (0.12%); Fe (2.5%); Mn (0.24%); Mo (0.005%); Zn (1.5%); S (2.5%)  
 Claims: Supplies micronutrients, stimulates microorganisms, improves structure, and reduces need for N fertilizer  
 Remarks: Mined from marine volcanic ash deposit; rate usually 200 lb/A first year, 100 lb/A thereafter

**Micro Munch**

Company: Agro-Chem, Inc., 11150 Addison, Franklin Park, IL 60231  
 Ingredients: Concentrate of microorganisms, enzymes, and organic nutrients  
 Claims: Speeds decomposition of plant residues

**MicroMX**

Company: TerraMax, Inc., 16905 Aberdeen St., N.E., Ham Lake, MN 55304  
 Ingredients: Iron, 0.1%; copper, 0.05; manganese, 0.05%; zinc, 0.05%; various microorganisms  
 Claims: Microorganisms break down pesticide residues, chlorinated hydrocarbons, and plant residue; aid in establishing a healthy soil environment

**MicroNFB**

Company: TerraMax, Inc., 16905 Aberdeen St., N.E., Ham Lake, MN 55304  
 Ingredients: Mix of food grade derived products and bacteria that form nitrogen fixing nodules on soybean roots  
 Claims: Introduces an improved nitrogen fixing strain into soil; promotes the establishment of nodules occupied by the delivered strain; fixes more atmospheric nitrogen; increases yield

**Micronized Landplaster** (See Echol West)**Microp**

Company: Soil Technologies Corp., 600 N 12th Street, P.O. Box 1415, Fairfield, IA 52556  
 Ingredients: Suspension of *Chlamydomonas* and *Cyanophyte* algae  
 Claims: Acts as a cover crop; reduces fertilizer need with repeated use, improves soil moisture relations, reverses compaction, fixes nitrogen  
 Known Research: Minor et al. (1990); Minor (1991)

**Microplex**

Company: Fertility King, Inc., 5475 N.W. Beaver Drive, Des Moines, IA 50323  
 Ingredients: Liquid mixture of soil microorganisms, associated enzymes, and trace minerals  
 Claims: Reduces the need for N, P, and K application; microplex enzymes and mycorrhizae fungi generate early vigor and aid in high germination; creates tilth and stimulates root development; improves nutrient uptake  
 Remarks: Stimulates biological nitrogen fixation in soil while mobilizing locked up P and K into forms available for crop uptake

**Micro Plus**

Company: Western Sunburst Inc., 906 N. Carpenter Road Suite C, Modesto, CA 95351  
 Ingredients: A Fe, Mn, Zn foliar micronutrient spray



**MicroVance**

Company: TerraMax, Inc., 16905 Aberdeen St., N.E., Ham Lake, MN 55304  
 Ingredients: 0–3–3 formulation; iron, 0.1%; copper, 0.05; manganese, 0.05%; zinc, 0.05  
 Claims: Solubilizes soil-bound chemical contaminants; encourages microbial growth  
 Remarks: Useful in detoxifying soils

**Midwestern Bio-Ag**

Company: Midwestern Bio Ag, Hwy ID, Box 126, Blue Mounds, WI 53517  
 Remarks: A philosophy and program for soil fertilization which emphasizes certain materials such as chelated micronutrients, high Ca lime, K<sub>2</sub>SO<sub>4</sub>, superphosphates or MAP and ammonium sulfate  
 Known Research: Kelling et al. (1996)

**MI-HI Microbes**

Company: Taino Technology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286, Cheney, WA 99004  
 Remarks: Sprayed at 2.66 oz/A to crops with a high incidence of disease

**Miko One Soil Zymate**

Company: Miko, Inc., 8240 Indy Lane, Indianapolis, IN 46224  
 Ingredients: Polyhydroxylignin sulphonates, ethoxylated nonylphenols, ethoxylated linear alcohols, methyl cellulose, fulvo- humates, marine algae extracts, Torula yeast extracts and sodium glucoheptonate  
 Remarks: Should be used to stimulate and extend applied fertilizers, applied at 1 qt/A in fall or preplant

**Mineral Max**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Solubilized granite dust

**Minx Plant Health Food**

Company: Minx Corp., Henes Park Lane, Menominee, MI 49858  
 Ingredients: Deodorized mink manure  
 Claims: Organic nutrient source

**ML2-248**

Ingredients: Apparently a nonionic surfactant  
 Known Research: Lawless et al. (1981)

**Moana Fish Fertilizer**

Ingredients: Hydrolyzed fish  
 Known Research: Edmeades (2002)

**Mol-Cal**

Company: Mark 21, Inc., P.O. Box 132, Sioux Falls, SD 57101  
 Remarks: Molasses and Ca specially formulated for low-Ca soils

**M.O.M.**

Company: Mandrones Organic Mineral Co., P.O. Box 2266, Salem, OR 97304  
 Ingredients: Mined organic humus fortified with nitrogen; 21 elements listed  
 Claims: Reduces need for commercial fertilizer, faster germination, improves soil tilth  
 Remarks: 1000-1500 lb/A for row crops

**Mother Earth**

Company: North American Agricultural Chem. Corp., 170 E. Market Street, Suite 933, Indianapolis, IN 46204  
 Ingredients: Primarily S (20%) with nine other elements present  
 Claims: Supplies S, increases CEC, increases nutrient availability, reduces plant shock or disease  
 Remarks: Mined deposit

**MPact**

Company: Enviro Products Corp., P.O. Bxo 335, Nixa, MO 65714  
 Ingredients: 10-5-5 biocatalyst from fermenting dairy manure and supplemented with nutrients  
 Claims: Increases yield; improves quality; reduces hard-pan and crusting  
 Known Research: Lukina et al. (1997)

**Multicrop Clay Breaker**

Company: Multicrop USA, 7415 Whitehall, Suite 111, Fort Worth, TX 76118-6427  
 Ingredients: Sulphonated ion exchange resin in an acidic solution  
 Claims: Accelerates the growth of natural bacteria which breakdown dead organics in the soil

**Myco-bio-boost**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: 2.-0.5-1-15Ca-10S pelleted fish fertilizer coated with mycorrhizae and trichoderma  
 Remarks: Use in-furrow for row crops

**Myconate**

Company: VAMTech LLC, 3186 Pine Tree Td., Unit D, Lansing, MI 48911  
 Ingredients: Potassium salt of 4'-methoxy, 7-hydroxy isoflavone (formononetin) isolated from clover roots  
 Claims: Increases fungal hyphal growth; stimulates mycorrhizal activity  
 Known Research: Bly et al. (2002)

**MYCROZ**

Company: Strong and Strong, Inc., P.O. Box 368, Rt. 23 N., Ottawa, IL 61350  
 Claims: Spray adjuvant that reduces herbicide needs by 50%

**N-Fix NS** (See N-TEXX)

Company: Ag International, Inc., 2320 Apollo Circle, Carrollton, TX 75006  
 Ingredients: 15-5-5 fertilizer made with KNO<sub>3</sub>  
 Claims: Yield increases at nominal additional costs  
 Remarks: To be used at 1 to 2.25 lb/A as supplement to other fertilizers and plant additives  
 Known Research: Penas (1983); Westerman (1985)

**N-gard**

Company: Carbo-Tech America, 3514 W. Decker Chapel Rd., Decker, IN 47524  
 Ingredients: Soluble calcium  
 Claims: Aids in development of desirable soil structure and increases efficient use of nitrogen fertilizer  
 Remarks: Should not be mixed with products containing phosphorus and potassium; apply 3-5 gal/A; not a replacement for lime

**N-hance**

Company: Clearstart Fertilizer, RR #1, Box 168, Emery, SD 57332  
 Ingredients: 10% soluble calcium  
 Claims: Increases nitrogen use efficiency  
 Remarks: Use 3-5 gal/A

**N-Hib Calcium** (See Nitro Plus 9)

Company: Stoller Chemical Co., Inc., 8582 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 12% Ca; commonly mixed with 28% UAN or liquid urea  
 Claims: Results in more Ca and N uptake, N in ammonical form for more efficient N use; higher yields, higher quality  
 Remarks: Some advertising indicates that N-Hib contains a “nitrate inhibitor”  
 Known Research: Kleinhenz et al. (1999)

**N-Plus**

Ingredients: Combination of N and Ca  
 Known Research: Palta et al. (1998); Ozgen et al. (1999)

**NRG+**

Company: N-Rich Plant Food, Inc., Box 111, Humboldt, SD 57035  
 Ingredients: Several grades of NPK fertilizers with low amounts of micronutrients included (0.05% Cu and Zn; 0.1% Fe; 0.09% Mn)

**N-Rich**

Company: Land Products, Inc., 7800 Marble NE, Albuquerque, NM 87110  
 Ingredients: Humic acid (20%); natural carbonaceous humate base (80%)  
 Claims: Improves structure; stimulates bacteria; increases water retention; increases fertility  
 Remarks: Contains no N; apply at 500 lb/A first year and 250 lb/A thereafter  
 Known Research: Penas (1983)

**N-Rich Plant Food**

Company: N-Rich Plant Food, Inc., Box 111, Humboldt, SD 57035  
 Ingredients: Several “water soluble fertilizers with 17 elements” including Zn and S, grades include 11-28-18, 28-16-7, 24-6-18  
 Claims: Increases yields and saves up to 1/2 of fertilizer costs  
 Remarks: For corn, use 1 lb/1000 plants

**N-TEXX**

Company: Chem X International, Inc., P.O. Box 1095, Frisco, TX 75034  
 Ingredients: 15-5-5 liquid fertilizer  
 Claims: Increased yields  
 Results: To be used as supplement to regular fertilizer program at 1 gal/10 acres; letter states it is same as N-FIX

**N-Zone Plus**

Company: Ag Spectrum, P.O. Box 215, 602 First St., DeWitt, IA 52742

Ingredients: Chelated micronutrient fertilizer containing 1% Ca, Cu, and Mn; 0.5% Co and 0.7% Mn

Remarks: Recommended for use with legume at 2 qt/A when plants are 4-6 inches tall

**Nachurs**

Company: Nachurs Plant Food Co., 421 Leader Street, Marion, OH 43302

Ingredients: 9-18-9, 10-20-10, 3-18-18 fertilizer; may also have other grades

Claims: Low salt, higher nutrient availability

Known Research: Walsh (1965); Christensen and Reid (1970); Clapp and Small (1970); Dahnke et al. (1974, 1975, 1976); Wiese and Stenberg (1974); Murdock et al., cited in Overdahl (1975); Holcomb et al. (1976); Walsh et al. (1976); Bandel (1982); Penas (1983); Wolkowski and Kelling (1985); Schulte (1986)

**National Ag Soil Treatment**

Company: National Ag Products Development Inc., P.O. Box 8611, Grand Rapids, MI 49508

Ingredients: Ammonium laureth sulfate, 58%; alpha pinene, 4%; isopropanol, 4%; inert ingredients, 34%

Claims: Increases downward water movement; more even stands, improved root growth, reduced erosion, easier tillage

Remarks: Used at 12 oz/A

Known Research: Baker (1981)

**Natural** (See Hynite)

Company: Hynite Corp., P.O. Box 219, South Milwaukee, WI 53172

Ingredients: 8-1-3 fertilizer

**Natur-All One-Step**

Company: Conservation Chemistry Corp., 112 W. Wyoming Avenue, Las Vegas, NV 89102

Ingredients: No specific ingredients given, apparently contains enzymes

Claims: Better rooting, higher yields, unlocks soil nutrients, lowers fertilizer needs

Remarks: Enzyme growth stimulant and soil activator

**Nature Grow**

Company: Imperial Mining and Minerals Corp., Eureka, CA 95501

Ingredients: Laterite mineral soil containing Mg (2%); Fe (30%); Mn (0.4%); Co (0.1%)

Claims: Releases locked up nutrients, supplies nutrients

**Nature N**

Company: Ensign and Halliman Inc., 101 E. Wilson Street, P.O. Box 104, Cleburne, TX 76031

Ingredients: Bluegreen algae in a nutrient medium (Bioplex) and a complex of plant growth regulators (Benenone)

Claims: Stimulates plant growth, reduces costs, improves desirable soil characteristics

**Nature's Miracle**

Company: Glengarry Gardens, Inc., 76 Ridgeview Terrace, Wayne, NJ 07470

Claims: Renews vitality of worn out soil, replaces need for fertilizer

Remarks: Apparently mostly recommended for gardens and house plants

**Nature's Nutrient** (See Catalyst Altered Water)

Company: Greenscape Services (distributor for C.A.W. Industries Midwest)  
 Ingredients: 50 trace minerals in chelated form with humic acids, amino acids and activated carbon in liquid suspensions  
 Claims: Stimulates microbes, roots and more robust plants  
 Remarks: Appears to be successor to Catalyst Altered Water or WillArd's Water

**Nature's Touch**

Company: Agro Chem, Inc., 11150 Addison, Franklin Park, IL 60131  
 Claims: Restores stressed and polluted soils to higher productivity  
 Remarks: May be most used with lawns

**Nature's Wonder**

Ingredients: "peat humic substance" marketed as a biostimulant  
 Known Research: Heckman (2001)

**Naturize Equity**

Company: Naturize BioSciences, 11737 Central Parkway, Jacksonville, FL 32224  
 Ingredients: 4.0% N derived from urea ammonium nitrate; microbial cultures of *Bacillus azotoformans*, *B. coagulans*, *B. licheniformis*, *B. megaterium*, *B. pumulis*, *B. subtilis*, *Paenilsacillus durum*, and *P. polymyxa*  
 Remarks: Spray mixture must have pH between 5.0-9.0 for maximum activity

**NEB-26 Feeding Stimulant**

Company: Agmore, Inc., Belgrade, MT 59714  
 Ingredients: 13.34% carbohydrates, 1.65% minerals, 0.32% protein, 0.13% fat  
 Claims: Improves productivity; increases yield, microbial activity, and nutrient availability  
 Remarks: Apply at 1 gal/A  
 Known Research: Kelling et al. (2001)

**NEF Complex 20 SL** (Possible alternative name: Earthworm 2001)

Company: Probe Chemical Corp., Dallas, TX  
 Ingredients: Bacterial fermentation concentrate containing enzymes, microorganisms including *Azotobacter*, *Thermoactinraye*, *Lactobacter*, and *B. subtilis*, and an active coferment containing amino acids, thioglycolates, nitrites, gibberellins, ammoniates, indolacetic acid and other compounds that stimulate soil organisms  
 Claims: Increases microbial activity, water penetration, fertilizer efficiency and crop quality; reduces need for fertilizer and pesticides  
 Remarks: "Biocatalyst containing live N-fixing microorganisms;" identical ingredient description to Earthworm 2001

**Nem-a-Sul**

Company: Greater Yields International, P.O. Box 280, Verona, MS 38879  
 Ingredients: 15% sulfur fertilizer with hormones  
 Remarks: Use as supplement to normal fertilization

**Neptune's Harvest Liquid Fish**

Company: Ocean Crest Seafood, 88 Commercial St., Gloucester, MA 01930  
 Ingredients: 2-4-0.5 derived from hydrolyzed fish  
 Claims: Increases yields and crop quality

**Neutra Nuggets**

Company: Essential Minerals, 108 S. 8th Street, Ashland, NE 68003  
 Ingredients: Pelletized fine limestone  
 Remarks: Need 100 lb for each 0.1 desired increase in pH, less on lighter soils

**New Life**

Ingredients:  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  (51.5%);  $\text{CaCO}_3$  (44.4%);  $\text{SiO}_2$  (2.2%)  
 Remarks: Sold as soil conditioner; applied at 200 lb/A  
 Known Research: Haby et al. (1980)

**Ni-Cal Plus**

Company: Planterra International Corp., P.O. Box 59366, Dallas, TX 75229  
 Claims: Breaks down soil calcium components in acid or alkaline soils to release soil nutrients  
 Remarks: Works best when applied with Planterra Soil Inoculant; apply at 1 gal/A  
 Known Research: Westerman (1985)

**Nitrate Balancer**

Company: Stoller Enterprises, Inc., 8580 Katy Freeway, Houston, TX 77024  
 Claims: Helps regulate hormones in plants; improves skin set of potatoes  
 Remarks: Use 1 gal/A

**Nitro 10**

Company: Zook and Ranck Inc., RR1, Gap, PA 17527  
 Ingredients: Dried, processed leather tankage, 10-0-0  
 Claims: Slow release source of N  
 Remarks: Use in planter at 300 lb/A

**Nitro 16**

Company: Stoller Enterprises Inc., 8580 Katy Freeway, Houston, TX 77024  
 Ingredients: 16% N solution, 6.5% Ca

**Nitroac** (Possible alternative name: BioStart)

Company: National Ag Products Development Inc., 1235 100th Street SE, Byron Center, MI 49315  
 Ingredients: Selected bacteria cultures and related enzymes including *Bacillus subtilis*, *B. cereus*, *B. thuringiensis*, *B. megaterium*, *Azotobacteraceae*, *Aspergillus*, *Lactobacillus*, and cytokinin extract of kelp  
 Claims: Assists the breakdown of plant residues and enhances asymbiotic N fixation, reduces fertilizer costs  
 Remarks: Apply 1 gal/10 acres

**Nitro-Gel**

Company: Agro Products International, 5019 Elsby, Dallas, TX 75209  
 Ingredients: 18-46-0 fertilizer in liquid form  
 Claims: Reduces fertilizer used by 60%, reduces N leaching  
 Remarks: Used with NG Activator forming a "humic gel"

**Nitro-Hold**

Company: National Ag Products Development Inc., 1235 100th Street, SE, Byron Center, MI 49315

Claims: Is a nitrogen extending solution for use with 28% UAN

Remarks: Physically encapsulates N in a strong carbohydrate solution; use 3 gal/A with 5 gallons of UAN

**NITRO/MAX** (See Agrispon)

Company: J and J Agri-Products and Services Inc., 220 S. Second Street, Dillsburg, PA 17019

Ingredients: Mixture of organic and inorganic compounds; organic compounds having phytohormone activity and act as morphogenes and porphyrin derivatives 0.0011%; other dissolved solids 0.5%; trace elements (not as a plant food source) 0.2%

Remarks: Note indicates this is same formula as Agrispon under new label

**NitroMike** (See Trans National Agronomy)**Nitron** (including Formula A-35)

Company: Nitron Industries Inc., P.O. Box 43, Larned, KS 67550

Ingredients: Enzymes

Claims: Increases nutrient availability, exchange capacity, germination, yields; mellows hardpans and acts as wetting agent

Remarks: Acts as catalyst to natural soil systems

Known Research: Gryszka and Hill (1988); Hill and Davidova (undated a and b)

**Nitro Plus 9**

Company: Stoller Enterprises, 8580 Katy Freeway, Houston, TX 77024

Ingredients: 9% N with Ca and Mg; derived from urea and Ca/Mg monocarbamides

Remarks: Apparently previously marketed as N-Hib

**Nitro Plus 12**

Company: Stoller Enterprises, 8580 Katy Freeway, Houston, TX 77024

Ingredients: 12% N, 7% Ca, 1% Mg, some urea and Ca/Mg monocarbamides

Claims: Improves yield and crop quality

**Nitrosol**

Ingredients: Derived from blood and bone containing gibberillic acid and tricontanol plus nutrients

**Nitrozyme**

Company: Manufactured by Atlantic Laboratories, Waldoboro, ME; distributed by Agri Growth Technologies, Suite 512, 10235 101 Street, Edmonton, Alberta, Canada

Ingredients: Extract of seaweeds, claiming traces of many elements and 400 ppm cytokinin as kinetin

Claims: Increased yields

Known Research: Morrow (1987); Taylor et al. (1990); Harker (undated)

**No-BLO**

Company: Cattle-Lac Liquids, Inc., P.O. Box 920, Gainesville, TX 76240  
 Claims: Reduces soil erosion by “stabilizing the soil surface”  
 Remarks: Apparently acts as a binding agent

**N.O.C. (Nutritional Organic Conditioner)**

Company: Paradise Marketing Inc., Anaheim, CA 92801  
 Ingredients: “Organic cafeteria of multi-enzymatic biocatalytic agents supported by a complex of vitamins and minerals”  
 Claims: Replaces fertilizer, aerates soil, increases water retention yield, quality, nutritional value, rooting, and shelf life  
 Remarks: 3 gal/A for first application

**Nongle**

Company: Rare Earth Development Center for Agricultural Technique, Beijing, China  
 Ingredients: Based on lighter rare-earth elements  
 Claims: Increases yield and quality  
 Remarks: Apparently is a mined and processed material

**NOTOX**

Company: NOTOX Corp., 2114 Avenue J, Lubbock, TX 79405  
 Ingredients: Activated oxygen  
 Claims: Triazine neutralizer  
 Remarks: Apply 1 lb/A, attacks the triazine at the R3 position and renders it nonphytotoxic

**Nu-Ag Seed Inoculants**

Company: Pro-Ag Inc., 2072 E. Center Circle, Minneapolis, MN 55441  
 Claims: Faster germination, earlier maturity, higher yields

**Nu-Gro 10**

Company: Major Brands Ltd., 25190 W. River Road, Perrysburg, OH 43551  
 Ingredients: Nonionic polymer of ethylene oxide, nonionic alkyaryl polyoxyethylene glycols  
 Claims: Penetrates soil, faster germination, better root system  
 Remarks: To be applied to gumbo soils

**Nulex Liquid Zinc**

Company: Nutra-Flo Co., P.O. Box 2334, Sioux City, IA 51107-0334  
 Ingredients: Various formulations with 10-20% Zn in clear liquid

**Nurture**

Company: Nurture, Inc., 4005 Hayes St., N.E., Columbia Heights, MN 55421  
 Ingredients: 100% volcanic ash  
 Claims: Revitalizing soil additive

**Nu-Soil**

Company: Nu-Soil, Inc., Suite #1215, 7500 College Blvd., Overland Park, KS 66210  
 Ingredients: 6-12-6 + 1 B in blend of water-soluble polymeric polyelectrolytes  
 Claims: Improves infiltration rate of bare soil; increases total porosity of bare soil; decreases bulk density



**Nutra-Flo Liquid Fertilizers**

Company: Nutra Flo Company, 1919 Grand Ave., Sioux City, IA 51106  
 Ingredients: Various grades, including 9-18-9, 5-15-15, and 3-18-18  
 Claims: Increases nutrient use efficiency; lower rates needed, low salt

**Nutrapathic Liquid Bacteria Concentrate**

Company: Parametric Associates, Inc., 10934 Lin-Valle Dr., St. Louis, MO 63123  
 Ingredients: Detoxifying blend of high enzyme-producing non-pathogenic bacteria  
 Claims: Releases locked-up soil nutrients  
 Remarks: Apply 2 oz/A

**Nutrapathic Soil Conditioner**

Company: Parametric Associates, Inc., 10934 Lin-Valle Dr., St. Louis, MO 63123  
 Claims: Reduces compaction, loosens soil, increases nutrient availability; increases root mass and stress tolerance

**Nutra-Phos** (See Sorba Sprays)**Nutricote**

Company: Agrivert Inc., 1345 Avenue of the Americas, New York, NY 10105  
 Ingredients: Several grades of fertilizer coated with resin to be slow release

**Nutrient Express**

Company: Miller Chemical and Fertilizer Corp., Hanover, PA  
 Ingredients: Various fertilizer grades, including 18-18-18 and 4-41-27  
 Remarks: Apply foliarly at rates from 4-7.5 lb/A  
 Known Research: Hall et al. (2002)

**NutriGROW**

Company: Carbotech Technologeis Inc., 165 N. Lively Blvd., Elk Grove Village, IL 60007  
 Ingredients: Fertilizers of various grades (i.e., 5-15-5); made from oxidized lignite ores containing humic acid  
 Claims: Increases nitrogen use efficiency and effect of fertilizers

**Nutri-Lease**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772  
 Ingredients: Proprietary blend of amino acids and organic complexing agents with some micronutrients  
 Claims: Catalyzes the breakdown of post-harvest residue of crops

**Nutri-Phyte P+K**

Company: Biagro-Western, Downingtown, PA  
 Claims: Aids yield and potato size distribution

**Nutriplant SD**

Company: Access Business Group International LLC, 7575 E. Fulton St., Ada, MI 49355  
 Ingredients: Contains calcium, 4.0%; magnesium, 2.0%; sulfur, 4.0%; assorted micronutrients  
 Claims: Enhances seedling emergence and growth  
 Remarks: To be used as a seed coat at 3.5-16 oz/100 lb seed

**Nutrisphere**

Company: Speciality Fertilizer Products, 134 Cherry Hill Dr., Belton, MO 64012  
 Ingredients: Patented granulations of micronutrients also containing N and S  
 Claims: Increases micronutrient uptake

**Nutrition Plus**

Known Research: Whitney et al. (1996)

**Nutritional Foliar**

Company: Agro-Culture Liquid Fertilizer, 3026 W. M-21, P.O. Box 150, St. Johns, MI 48879  
 Ingredients: 4-1-2

**Nutrol**

Company: Williams Soil Service, 5619-460 th St., Paullina, IA 51046  
 Ingredients: 0-50-32 derived from monopotassium phosphate  
 Claims: Improves and increases plant growth and health; increases disease resistance; speeds plant maturity  
 Remarks: Low salt index

**Oasis**

Company: New Life Resources, Inc., 523 Bismarck Expressway, Bismarck, ND 58501  
 Ingredients: Starch-based copolymer with *Azotobacter* and other organisms  
 Remarks: To be used as a seed coating with specific formulations for 12 crops (mostly nonlegumes)

**OGP-7**

Ingredients: Seaweed extract from 3 species harvested and deep-frozen off French Coast; contains 19 trace elements, 18 amino acids, and 6 vitamins  
 Remarks: Apply at 1-2 pt/A

**Olde Worlde All-Purpose Spray Adjuvant**

Company: Olde Worlde, Inc., 401 Fralay Road, Box 2488, High Point, NC 27261  
 Ingredients: Nonyl phenoxy polyethoxy ethanol, 26%; constituents ineffective as a spray adjuvant, 74%  
 Claims: Increases yields; improves pesticide, herbicide, insecticide and fungicide performance; improves root contact  
 Known Research: Kelling et al. (1988c)

**Open All**

Company: Deutrel Laboratories, P.O. Box 768, Santa Paula, CA 93060  
 Ingredients: Deuterium sulphate derived from heavy water and sulfuric acid 6.30%, organic sulfur compounds from deuterionized water soluble depolarized petroleum 0.81%  
 Claims: Normalizes pH, opens compacted soils; implied effect on N fixation  
 Remarks: "Guaranteed to grow any plant in any soil"

**Orga-Min**

Company: Orga-min, Walnut Street NE, Canton, OH 44707  
 Ingredients: A mined natural organic-mineral compost containing 22 elements  
 Claims: Restores humus and fertility, activates bacteria, improves tilth, acts as catalytic agent  
 Remarks: 200-300 lb/A in row or 500-600 lb/A broadcast for field crops

**Organic Energy Compost**

Company: Organic Energy Products Inc., Box 17, RR1, Mukwonago, WI 53149  
 Ingredients: 1-1-1 with micronutrients and protein complexes; apparently are several variations  
 Claims: Soil conditioner; advertising implies some insect and disease control activity

**Organic-Phos** (See Humiphos)

Company: Organic Laboratories Inc., 5050 Westheimer Street, Houston, TX 77027  
 Ingredients: Untreated 100% organic phosphate (13% P)  
 Claims: P source to replace bone meal

**Organic Soil Treatment**

Company: O.S.T. Products, Inc., 400 Third St., P.O. Box 429, Hearne, TX 77859  
 Ingredients: Humus concentrate with composted peat and mixture of yeast, proteins, bacteria and enzymes  
 Claims: Loosens tight soil; improves moisture holding capacity  
 Remarks: Appears to be recommended mostly for lawns and gardens

**Organic X-Tender**

Company: Fertilizer Marketing Facilities Co., 9443 Sherwood Glen, Dallas, TX 75228  
 Ingredients: Prehistoric humus with protein and bacteria added  
 Remarks: Use 1000-4000 lbs/A

**Orton Crystals**

Company: Gyro Products, Inc., P.O. Box 7146, Colorado Springs, CO 80933  
 Ingredients: Cross-linked polyacrylamide  
 Claims: Holds water and nutrients in root zone; encourages early germination; improves soil structure  
 Remarks: Super-absorbent; use at 5-15 lb/A

**OXYBAC**

Company: Bioferm International, 209 Chester Avenue, Moorestown, NJ 08057  
 Ingredients: Complex of microbes, micronutrients, K fulvo-humates and surfactants  
 Claims: Degrades herbicides, insecticides and other pesticides  
 Remarks: "Microlytic soil detoxicant" by producing highly active oxidase enzymes

**P3K** (Possible alternative names: Biotron, BX)

Company: V and J Petrik Laboratories, Woodland, CA 95695  
 Claims: Stimulates N fixing bacteria and other beneficial microorganisms, reduces fertilizer need by 50%; promotes crop residue decomposition  
 Remarks: 0.2 gal/A recommended; condensed organic fertilizer  
 Known Research: Newman (1980)

**PAM** (Polyacrylamides)

Remarks: Super absorbents  
 Known Research: Bouranis et al. (1995); Sojka and Lentz (1997); Sojka et al. (1998); Lentz et al. (1998)

**Panhandler**

Company: Ag Nation Products, P.O. Box 30127, East Canton, OH 44730  
 Ingredients: 58% ammonium laureth sulfate, 2% diapritine, 4% isopropanol  
 Claims: Reduces compaction; breaks up hard pan  
 Remarks: Apply 0.5-1 pt/A, depending on soil organic matter content

**Pay Bac**

Company: General Compost Corp., 322 S. 16th Street, Philadelphia, PA 19102  
 Ingredients: Microorganisms, enzymes and hormones  
 Claims: Apply to manure to stop nutrient loss from manure, improves soil moisture, stimulates root growth, eliminates manure odor

**Pay Dirt Soil Wetter**

Company: U.S. Ag Associates, Inc., Box 770084, Houston, TX 77072  
 Remarks: Apparently is a wetting agent

**PB-50**

Company: Philom Bios  
 Ingredients: Apparently a fungal inoculant  
 Claims: Improves phosphorus availability  
 Known Research: Lamond et al. (1990)

**PCC 700**

Ingredients: Apparently a zinc-containing material

**PEK**

Company: Bio-Huma-Netics  
 Remarks: Apparently a nutrient mixture used for foliar applications

**Penetrate**

Company: LTL Marketing, Box 167, Castlewood SD 57223  
 Ingredients: Contains humic acid fractions, enzymes  
 Claims: Improves soil tilth; keeps soil from cracking; restores biological activity in soils

**Pennasoil**

Company: Tabox Inc., Bozeman, MT 59715  
 Ingredients: Saporins and small amounts of minerals, proteins, and fats  
 Claims: Enhances yield, surfactant; promotes healthy microorganism populations  
 Remarks: Previously labeled as Gromor; uses 1 gal/10-25 acres

**Penta Soil** (See Pennasoil)

Company: McDowell Industries, P.O. Box 7247, Fargo ND 58109

**Pepzyme** (M, G and C)

Company: Taino Technology and Technique, Inc., S 12102 Andrus Rd., Rt. @, Box 286, Cheney, WA 99004  
 Ingredients: Different enzyme products for soils, foliar applications and ponds, respectively  
 Claims: Simulates beneficial microbes; increases nutrient availability; improves soil physical condition  
 Remarks: Apply at 12.5 oz/A

**Perk + Moly**

Company: Custom Chemicides, P.O. Box 11216, Fresno CA 93772  
 Ingredients: 3-17-0 with smaller amounts of micronutrients, including 0.55% Mo with natural plant extracts and complexing agents  
 Claims: Improves root development and reduces stress  
 Remarks: Apply 16 oz/A banded or 32 oz/A broadcast

**Perk Plus**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772

Ingredients: 3-18-0 with smaller amounts of micronutrients with natural plant extracts and complexing agents

Claims: Improves root growth and plant stress

**Petrik's Bio-Humic Gro-Lac**

Company: Petrik BIO-HUMIC Supplies, Inc., 5875 Fleur Drive, Des Moines, IA 50321

Remarks: To be blended with liquid N, P or K fertilizer at 1 gal/100 gal fertilizer; use in conjunction with Wonder Life, Bio-Humic Agricultural Production Systems

**PFE 2000**

Company: Carbo-Tech America, 3514 W. Decker Chapel Rd., Decker, IN 47524

Ingredients: Glucose, fructose, maltose, dextrose, dextroglucose, dextrin, sucrose

Claims: Feeds soil bacteria; improves soil structure; conserves nitrogen

Remarks: Apply 16 oz/A with fertilizer or herbicide

**PGR-IV**

Company: Plant Growth Formulations, Inc., Box 2307, Gainesville, GA 30501

Claims: Improves soil conditions; enhances germination; promotes rooting and propagation; enhances mineral uptake; promotes plant resistance to the environmental factors of temperature and water

**PGS-10 Plant Growth Activator** (Possible alternative name: AgroLig)

Company: Hopkins Chemical Co., Box 7532, Madison, WI 53707

Ingredients: Mixture of carboxyl, phenolic and polyhydric acids 10%

Claims: Stimulates germination and nutritional activity, and soil microorganisms

Remarks: Use 1-2 gal/A broadcast, 0.5-2 qt/A row or foliar. Apparently extracted from coal-like deposits

Known Research: Kelling et al. (1988g); Edmeades (2002)

**pH-Acidifier**

Company: Interworld Inc., 2270 Camino Vida Roble, Suite H, Carlsbad, CA 92008

Ingredients:  $\text{NaHSO}_4$  94.7%,  $\text{Na}_2\text{SO}_4$  5%,  $\text{H}_2\text{O}$  0.2%, Fe 0.04%

Claims: Increases yields by acidifying other fertilizers such as UAN or 10-34-0

**pHas-act**

Ingredients: Fine calcitic lime suspension 100% passing 200-mesh screen

Remarks: 500 lbs replaces 3 T aglime

**pHix**

Company: TerraMax, Inc., 16905 Aberdeen St., N.E., Ham Lake, MN 55304

Ingredients: Processed humates and peptides; salt water algae extract

Claims: Binds soluble salts; encourages microbial activity; reduces chloride levels

Remarks: Helps to reclaim sodium impacted soils

**Phoenix AMC**

Company: Phoenix Agricultural Group, P.O. Box 3769, Lawrence, KS 66046

Claims: Reduce N fertilizer need, increase yields

Known Research: Whitney et al. (1985a); Whitney et al. (1985b)

**Phoenix VHC**

Company: Phoenix Agricultural Group, P.O. Box 3769, Lawrence, KS 66046  
 Ingredients: Apparently an extract of bacteria yeast and fungi 10% with various hormones and enzymes including adenine 0.0004%, indolebutyric acid 0.0004%, and indoleacetic acid 0.0004%  
 Claims: Stimulates soil microbes, germination and plant growth; improves fertilizer efficiency; reduces N fertilizer need; improves moisture relations; increases yields  
 Remarks: Apply at 1 gal/10 acres; similar compounds and amounts as those listed for AgroPlus  
 Known Research: Whitney et al. (1985a); Whitney et al. (1985b)

**Phosphobacterin**

Ingredients: Bacterial preparation of kaolin carrying spores of *Bacillus megatherium* var. *phosphoticum*  
 Claims: Frees soil organic phosphates  
 Known Research: Smith et al. (1961); Laughlin (1964); Dunigan (1979)

**Phos-pho-Germ**

Company: Nitro-Phospho Corp., Richmond, VA  
 Ingredients: A complete compost with added bacteria  
 Claims: Adds nutrients, conditions soil, corrects pH  
 Remarks: Use 300-1000 lb/A; is labeled a “bacterial soil vitalizer”

**Phos Plus**

Company: Western Sunburst Inc., 906 N. Carpenter Road, Suite C, Modesto, CA 95351  
 Ingredients: A 5-17-0 “water run” phosphate

**pH Plus**

Company: World Agrisearch Corp., P.O. Box 59202, Dallas, TX 75229  
 Ingredients: Ca-saturated organic chelating agent  
 Claims: Releases calcium, decreases “free” soil hydrogen, improves soil physical condition  
 Remarks: Liquid calcium soil conditioner; 1 gal. equivalent to 500-750 lb effective calcium carbonate

**Phytozym 2-2-2**

Company: Epicore Networks Inc., Suite 3070, Bow Valley Square II, 205 5th Ave., S.W., Calgary, Alberta  
 Ingredients: Fertilizer derived from marine algae extracts and chelated micronutrients  
 Claims: Improves stress resistance, increases crop yields, improves germination  
 Remarks: Apply at 1 qt/A

**Planta-gel**

Company: Napera Chemical Company, Inc., Rt. 17, Harriman, NY 10926  
 Ingredients: 99.5% potassium propenoate-propenamamide copolymers  
 Remarks: Super-absorbent; mostly suggested for greenhouse use

**Planteen**

Remarks: Organic leaf conditioner; apparently mostly for household use

**Planterra** (See Agralife, Genesis II and Agrispon)

Company: Planterra International Corp., P.O. Box 59366, Dallas, TX 75229

Ingredients: Culture of bluegreen algae and heterotrophic bacteria associated with bluegreen algae

Claims: Stimulates N fixation and reduces N fertilizer need

Remarks: Use 0.1 gal/A

Known Research: Langer et al. (1979); Westerman (1985)

**Planters II** (Other versions include Planters and Planters III)

Company: U.S. Soil, Drawer 926, Salida, CO 81201

Ingredients: Trace mineral fertilizer containing Ca (5%); S (5%); Mg (0.5%); B (0.02%); Fe (0.4%); Co and Mo (0.0005%)

Claims: Supplement to primary plant food, improves soil physical condition

Remarks: Use 300-500 lb/A

Known Research: South Dakota (1963, 1964, 1970); Bauder (1976); Dow et al., (1976); Haby et al. (1980); Kelling (1980); Kelling (1988h)

**Plant Helper**

Company: Ag Tech Crop., 1380 N. Abby, Fresno, CA 93703

Ingredients: Liquid concentrate: *Trichoderma atroviride*, 8.0%; *T. virens*, 4.0%; flowable concentrate: *T. atroviride*, 10.9%

Claims: Stimulates plant growth and health through the entire growing season

**Plant Plasma**

Ingredients: Derived from fish and vegetable extracts plus humic acid and nutrients

Known Research: Edmeades (2002)

**Plant Success**

Company: Plant Revolution, 1235 N. Harbor Blvd., Suite 115, Fullerton, CA 92832

Ingredients: Humic acids derived from leonardite, cold water seaweed extract and mycorrhiza

Claims: Increases nutrient uptake and crop yield

**Plen-T-4 Foliar spray**

Company: Trico Ag Products Inc., Box 1104, Storm Lake, IA 50588

Ingredients: Blend of lactic acid, molasses, dried whey and kelp with Cu (0.5%); Fe (0.6%); Mn and Zn (0.7%)

Claims: Better emergence and root growth, higher yields

Remarks: Apply 1 gal/30 A. Also have seed treatment with slightly different formulation

Known Research: Christensen (1975); Kansas (1975a, 1976); Cmarik et al. (1976); Kaizer et al. (1977); McKibben (1977); Baker (1981)

**Plen-T-4 Soil Conditioner**

Company: Trico Ag Products Inc., Box 1104, Storm Lake, IA 50588

Ingredients: Ammonium alkyl ether sulfate 48%; alpha-pinene 4%

Claims: Eliminates wet spots, increases tile effectiveness, reduces runoff, easier tillage, increases yield potential

Remarks: Apply 2 oz/A with 1-20 gal water

Known Research: Hunt and Baker (1981)

**Plexal**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772

Ingredients: Organic acid extract chelating agent

Claims: Improves effectiveness of fungicides and systematic insecticides

**Plyac**

Remarks: A wetting agent

Known Research: Doersch (1979)

**Polverdol**

Ingredients: Mixture of N, P, K and 11 trace elements plus vitamin B and hormones

Known Research: Edmeades (2002)

**Polytox**

Company: Polybac Corp,

Remarks: Apparently is a rapid microbial test for screening for toxicity

**Potatoflo**

Company: Soygro (Pty) Ltd., P.O. Box 5311, Rockspark, 2523 Belts Bricks Rd. No. 7, Mooibank, Patchefstroom, South Africa

Ingredients: A PGR inoculant

Claims: Increases yield and quality of tuber crops; increases amount of tubers; aids in the production of better root systems

**Powerich**

Company: Midstate Plant Food Company, Box 542, Ladd, IL 61329

Ingredients: Several formulations of fertilizer made from feed-grade urea, MAP and KNO<sub>3</sub> with micronutrients (Cu 0.05%, Fe 0.10%, Mn 0.09%, Zn 0.05%) added; are soluble plant food concentrates

Remarks: Apparently to be used at low rates along with regular nitrogen program

**Power Tower**

Company: Top Line Service Co., Box 56, Carthage, SD 57323

Ingredients: "Orthomolecular multiwave oscillating generator"

Claims: Adds energy to crops

**PREMERGE** (See Dinoseb)**Pro Cal** (See Pro-Green)

Company: Western Soils Co., 1107 South Street, Waterloo, IA 50705

Ingredients: Ca (18%), organic (5.6%), sulfur (17%), Mg (2%), Al and Fe (1%), SiO<sub>2</sub> (3.7%) and less (<0.3%) of 9 other elements

Claims: Nutrient source

Remarks: Mined deposit from an "enriched bed of anhydrite and gypsum which had part of the CaSO<sub>4</sub> replaced by MgSO<sub>4</sub>," soluble rock phosphate, organic matter and oxides of iron and aluminum

Known Research: Dow et al. (1976)



**Product F**

Company: Western Sunburst Inc., 906 N. Carpenter Road, Suite C, Modesto, CA 95351  
 Ingredients: Liquid fulvic acid

**Product H**

Company: Western Sunburst Inc., 906 N. Carpenter Road, Suite C, Modesto, CA 95351  
 Ingredients: Liquid humic acid

**ProfitPro; ProYield Crop Management System**

Company: ProfitPro, LLC, 703 Marshall St., Albert Lea, MN 56007  
 Remarks: Crop management system that may include biostimulants

**Pro Germinator**

Company: Agro Culture, 3026 W. M-21, P.O. Box 150, St. Johns, MI 48879  
 Ingredients: 8-20-2 or 9-24-3 and other grades with micronutrients  
 Claims: Faster development of roots and seedlings; faster crop emergence

**Pro-Green** (May be similar to Pro Cal)

Company: Western Soils Co., 1107 South Street, Waterloo, IA 50705  
 Ingredients: Ca (18%), Mg (0.5%), S (14.2%), B (0.02%), Fe (0.1%)

**Pro-Gro**

Company: House of Pro-Gro, Box 1631, Fargo, ND 58107  
 Ingredients: Trace minerals and micronutrients, hydrolyzed fish marine algae, seaweed, phosphoric acid, potassium hydroxide, lignosulfonates; to make 10-8-8 fertilizer; also contains labeled amounts of some micronutrients  
 Claims: Increases yields  
 Remarks: Apply at 1 to 1.5 qt/A as foliar spray

**Promesol 30**

Company: Carpenter Sales Inc., 10825 NE Hubbell Road, Bondurant, IA 50035  
 Ingredients: Trihydroxy-glutaric acid 54%, Ca 25%, N 5%  
 Claims: Aglime substitute; increases Ca availability  
 Remarks: 1 gal equivalent to 500 lb to 750 lb effective CaCO<sub>3</sub>  
 Known Research: Iowa (1976); Colliver and White (1978); Flannery (undated); Overdahl (undated); Peck (undated)

**Pro-Pel**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Pelleted blend of high calcium lime, colloidal phosphate, granite dust and humates  
 Remarks: Apply 500-2000 lb/A

**Pro-Yield**

Company: Trans Chemic Industries, Inc., 150 Meadowland Parkway, Secaucus, NJ 07094  
 Ingredients: 22% modified humate concentrate  
 Claims: Improves water penetration; stimulates soil microbes; enhances retention of fertilizer; reduces fertilizer needs  
 Remarks: Apply 0.5 to 4 gal/A  
 Known Research: Whitney et al. (1988)

**Psychotronic tuner**

Company: Interdimensional Sciences, Inc., Georgia

Remarks: Analyzes the soil using applied radionics by measuring the etheric energies

**PT 21**

Company: Ag Spectrum Co., P.O. Box 215, 602 First St., DeWitt, IA 52741

Ingredients: Liquid urea (21% N) with a urease inhibitor added; enhanced by the "addition of multiple energy sources," and includes other enzymes, vitamins, and stimulants

Remarks: Recommended rates vary from 4-20 gal/A

**Pure**

Company: Pure Plant Food International, Box 483, Sioux Falls, SD 57101

Ingredients: Either 9-19-9 or 8-16-8 fertilizer

Remarks: Advertised that 4 gal/A equal to 500 lb plant food

**PZ1000**

Company: Tainio Techology and Technique, Inc., S 12102 Andrus Rd., Rt. 2, Box 286, Cheney, WA 99044

Remarks: A nutrient mixture to be applied at 2.66 oz/A to enhance nutrient utpake

**Quantum-4000**

Company: Gustafson Inc., P.O. Box 660065, Dallas, TX 75266

Ingredients: Selected strain of *Bacillus subtilis*

Claims: Reduces disease invasion of peanut root systems

Remarks: For use with peanuts

**Quick Kick**

Company: Greater Yields International, P.O. Box 280, Verona, MS 38879

Ingredients: 0-24-20 + S with growth regulators added

Remarks: Use foliarly as supplement to normal fertilization

**QuickRoots**

Company: TJ Technologies, Inc., 805 32nd Ave., Brookings, SD 57006

Ingredients: Mixture of *Bacillus subtilis* and *Trichoderma virens*

Claims: Increases plant overall health; more root growth; greater nutrient intake; increases yield

**R-101**

Company: Gateway Marketing Group, 314 Main St., Murray, KY 41071

Ingredients: Bacteria culture of *Lactobacillus*

Claims: Accelerates the decomposition of animal waste and reduces odor

**Radiant Blend**

Company: Midwest Radiant Co., Seward, IL 61077

Ingredients: A natural non-poisonous biotic soil builder activated with radiant bacteria, contains phosphate, potash, dolomitic lime and over 40 trace elements

Claims: Neutralizes toxins and poisons, increased growth, and insect and disease resistance, soil loosened, increased crop food value

Remarks: Apply about 200 lb/A

Known Research: Walsh (1965)

**RADIX**

Company: FPG, Memphis, TN  
 Ingredients: 6-24-6 with micronutrients at concentrations of 0.1% or less  
 Remarks: Apply at 2-3 pts/A foliarly twice to potatoes and other root crops  
 Known Research: Cattanach (1992b)

**Reclaim**

Company: AgPro Systems, Route 3, Box 376, Big Sandy, TX 75755  
 Ingredients: Blend of enzyme substrates, polydimethylsiloxone, polyalkylene oxide and lignin polymers  
 Claims: Detoxifies soil

**Remedy** (See Step 1)**Renew Plus**

Company: AgPro Systems, 318 W. Rusk St., Tyler, TX 75701  
 Ingredients: Poly-co-ferment enzyme complexes, lignin polymers, humic acid, fructofuramosyl, kept extract, dimethylsiloxone, and non-ionic surfactants  
 Claims: Increases yield; stronger root systems; better plant vigor; increased number of pods per plant; improves soil structure

**Replenish**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772  
 Ingredients: Amino acids, enzymes, natural plant extracts, and small amounts of micronutrients  
 Claims: Increases aeration and tilth in fields; stimulates microorganism growth; converts essential nutrients into forms more available to plants

**Residue, Residue DF**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356  
 Ingredients: Combination of manure tea, compost tea, humic acids and nutrients  
 Remarks: Available in liquid or dry formulations; use at 3 lb or 2 gal/A

**Residue Treat** (See IAT Residue Treat)**Respond** (See Agrispon)

Company: United Agri Products Inc., 419 18th Street, Box 1286, Greeley, CO 80632  
 Ingredients: 7.6 ppm vitamin B complex compounds; 3.4 ppm purine-like and adenine-like compounds; 2000 ppm trace elements  
 Claims: More efficient N use, better drought resistance and growth, higher yields  
 Remarks: Apply 1 to 1 1/2 pts/A foliarly  
 Known Research: Maddux and Barnes (1985); Chase et al. (1986); Kelling et al. (1988e)

**Response**

Ingredients: Derived from seaweed and fortified with macro- and micronutrients  
 Known Research: Edmeades (2002)

**Restore** (Several products including Foliage Plants, Tomato Booster and Compost Maker)

Company: Ringer Corporation, 6860 Flying Cloud Drive, Eden Prairie, MN 55343

Ingredients: Mix of organic nutrients, bacteria and enzymes

Claims: Rejuvenates tired soil, feeds plants, neutralizes harmful salts

Remarks: Appears to be primarily sold for home and garden use

**Revive**

Company: American Chemical Works, 178 S. Kalemath Street, Denver, CO 80223

Ingredients: Polyflavanoid complexes, plant byproducts, decomposition byproducts, ectylphemoxy and polyetchoxy complexes 25%; Na-dioctylsulfosuccinate 0.0012%

Claims: Loosens tight soils, helps rooting systems, increases germination, reduces runoff and erosion

Remarks: Recommended mostly for groundskeepers

**Reward** (See Respond)

Company: United Agri Products Inc., 419 18th Street, Box 1286, Greeley, CO 80632

Ingredients: Labeled ingredients identical to Respond

Remarks: Letter indicates this product is same as Agrispon and Nitro/Max distributed by different company

Known Research: Rehm et al. (1985)

**ReZist**

Company: Stoller Enterprises Inc., 8580 Katy Freeway, Suite 200, Houston, TX 77024

Ingredients: 2% copper, 2% manganese, 2% zinc plus polyamines

Claims: Increases disease resistance

Remarks: Apply foliarly at 2 qt/A

**RGS**

Company: Nulex, Inc., 1919 Grand Ave., Sioux City, IA 51106-57-8

Ingredients: Ammoniacal nitrogen, 15.0%; zinc, 17.%; derived from ammonia and zinc oxide

Claims: Promotes earlier growth of sturdier plants with larger, more vigorous root systems; increases nutrient uptake and yield

Remarks: Use in anhydrous ammonia and liquid or dry fertilizers containing nitrogen; band at 5 fluid oz/A or broadcast at 10 fluid oz/A; N and Zn concentrations and rates are similar to ACA

**Rico Verde**

Company: Agronics Incorporated, 701 Madison St. N.E., Albuquerque, NM 87110

Ingredients: 5-3-3 fertilizer with 3% S, 0.4% Zn, 0.3% Mn, and 0.1% Cu

Remarks: A soil conditioning fertilizer blended to a Clodbuster base; label gives lawn and garden uses

**RKR Soil Amendment**

Ingredients: Apparently mined humate deposit from Montana

Claims: Brings soil into balance, restores highest fertility, conditions soil

Remarks: "A cover crop in a bag"

**RL37 and RL3I**

Company: Bio Com Industries Inc., 9201 Penn Ave. S., Suite 26, Bloomington, MN 55431  
 Ingredients: Apparently are humates derived from leonardite  
 Remarks: Two applications of 1 pt/A each are recommended (post tillage premerge and foliar or post harvest pre-tillage)

**Rodak**

Company: UTL Marketing Inc., P.O. Box 1903, Des Plaines, IL 60017  
 Ingredients: Contains processed extracts of manures, bones, algae, sea plants, sesame straw, yucca juice, wheat straw, animal proteins, herbs/spices, potable water  
 Remarks: Used for land reclamation/rebuilding, contaminated water clean-up; bioremediation programs; de-contamination of salt buildup; produces healthy, active microbial colonies in soils, water, and decomposition conditions

**Root Partner**

Company: Essential Minerals, Inc., 30400 Telegraph Road, Suite 308, Birmingham, MI 48010  
 Ingredients: Ground limestone, dolomite limestone, rock phosphate and volcanic ash (20.5 to 24.5% Ca; 3.5% Mg; 1.3% P)  
 Claims: Improves crop yields and animal health  
 Remarks: Soil balancer; 100-200 lb/A used in row application; 200 lb/A broadcast

**Roots**

Company: Soilizer Corp., 25 Science Park, New Haven, CT 06511  
 Ingredients: Combination of biostimulants including humic acids and marine algal extracts with fertilizer  
 Remarks: Mostly sold for turf and greenhouse uses  
 Known Research: Berlyn and Russo (1990); Heckman (1990; 1994; 1995)

**ROW Prod**

Company: PROD Inc., P.O. Box 9272, Moscow, ID 53843  
 Ingredients: 3-10-3  
 Remarks: Apply at 1.5 gal/A banded for potatoes or sugar beets  
 Known Research: Secor et al. (1991)

**Ruhm Phospate Rock**

Company: Ruhm Phospate & Chemical Co., Box 361, Columbia, TN 38401  
 Ingredients: 30% total P<sub>2</sub>O<sub>5</sub> with minor amounts of 18 other elements listed  
 Remarks: 85% passing 300-mesh screen

**Samoset Sea Crop**

Company: Samoset Seaweeds, Boothbay, ME 04537  
 Ingredients: Made from seaweed, *Ascophyllum nodosum*  
 Claims: Stimulates roots, increases soil bacteria, helps retain soil moisture

**Saturall**

Company: Conklin Co., 4660 W. 77th Street, Minneapolis, MN 55435  
 Remarks: Apparently a wetting agent  
 Known Research: Sunderman (1978); Lawless et al. (1981); Sunderman (1983)

**Saturex** (Possible alternative names: Like Wild)

Company: Chemical Dynamics Corp., Chicago, IL 60640; also other marketing companies  
 Ingredients: Metal salts of Cu (0.05%); Fe (0.57%); Mn (0.4%); Zn (0.17%) and S (1.0%) combined with polyflavonoids  
 Claims: Increase water penetration, improve plant color  
 Remarks: Other products may include urea or simply a wetting agent

**Score**

Company: Ag Specrum, P.O. Box 215, 602 1st St., DeWitt, IA 52742  
 Ingredients: Calcium, boron  
 Claims: Provides necessary nutrients to maturing plants

**Sea-Born; Sea-Born + F**

Company: Sea-Born Inc., Charles City, IL 60616  
 Ingredients: Blend of soluble seaweed extract and hydrolyzed fish fortified with urea, H<sub>3</sub>PO<sub>4</sub> and KOH to make either 6-3-3 or 12-6-6  
 Claims: Source of nutrients, activates soil bacteria, enhances N fixing bacteria, helps release soil nutrients  
 Remarks: "At least 6 lbs of hydrolyzed fish/gal." Use at 1 qt/A with seed and 1 qt/A foliar  
 Known Research: Indiana, cited in Overdahl (1975); Benson and Anderson (1978); Kelling et al. (1978, 1980); Peterson (1979); Kelling (1980); Lessman and McCutchen (1980); Edmeades (2002)

**Sea Crop 16**

Company: Atlantic Laboratories Inc., Waldoboro, ME 04572  
 Ingredients: Seaweed extract containing cytokinins  
 Known Research: Lessman and McCutchen (1980); Gupta and MacLeod (1984); Edmeades (2002)

**Sea Leaf**

Company: TransNational Agronomy LTD, 470 Market Street SW, Suite 101, Grand Rapids, MI 49503  
 Ingredients: A 4-1-1 fish and seaweed fertilizer  
 Remarks: To be used as a fertilizer supplement

**Sea Life**

Company: Glacier Natural Products and Research Inc., P.O. Box 569, Polson, MT 59860  
 Ingredients: Processed Norwegian kelp

**Seamac**

Ingredients: Seaweed extract containing 66 mg/L cytokinin and trace elements  
 Known Research: Edmeades (2002)

**Seaquist** (Labeled identically to Lactobase)

Company: R&S Davis, 9869 M-78, Haslett, MI 48840; also other distributors  
 Ingredients: High molecular weight protein; 28% dry matter; 6.5% protein; 0.4% fat; 3% ash; 18% NFP; 72% moisture  
 Claims: Increase production, seedling growth  
 Remarks: Can be used as root dip, seed treatment, soil or foliar application  
 Known Research: Murphy et al. (1978)

**Seasol**

Ingredients: Natural growth stimulants derived from Tasmanian kelp  
 Known Research: Edmeades (2002)

**Seed-gro**

Company: Company unidentified, Box W-117, 22 Cortlandt Street, New York, NY 10007  
 Ingredients: An unclassified ore from “volcanic cauldron and hydrothermal geyser alteration, permeation and enriched with... nutrients.”  
 Claims: Increase yields, quality, germination, root structure, stops soil crusting, neutralizes harmful sodium  
 Remarks: “A seed nutrient germinator”

**Seed Prod** (Possible alternative name Alga-Min+)

Company: PROD Inc., 1605 Lamhi Dr., P.O. Box 9272, Moscow, ID 83843-1772  
 Ingredients: 2-11-5 derived from potassium nitrate and potassium phosphate  
 Claims: Improves germination and early root development  
 Remarks: Use 1.6 to 3.2 oz/100 lb seed; is to be used in supplement to normal fertility program  
 Known Research: Farber (1992)

**Seed Starter Foliar Spray** (See Echol West)**Seed Treat** (See IAT Seed Treat)**Seed Treatment +** (See Cytozyme)**SETT**

Company: Stoller, Inc., 8582 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 8% Ca and 1% B derived from calcium sucrose and sodium borate  
 Claims: Reduces localized ethylene production; increases fruit set; reduces damage to fruit storage tissue  
 Remarks: Recommended for horticultural crops at 2-4 qt/A at regular intervals

**Shur-Crop**

Company: Hi-Bar Ltd., P.O. Box 2075, 1825 Kusel Road, Oroville, CA 95965  
 Ingredients: Biocatalytic agents fortified with enzymes; 2.5% crude protein; several vitamins  
 Claims: Fertilizer and chemical substitute, conditions soil, reduces insects, weeds and disease, reduces plant water needs  
 Remarks: “Digests and/or emulsifies the molecular shrouds which encapsulate elements locked in an otherwise dormant soil”  
 Known Research: Kelling et al. (1988b)

**Shur-Gro**

Company: Canton Mills Inc., 160 Mill St., P.O. box 97 Minnesota City, MN 55959  
 Ingredients: A natural organic blend fertilizer, may be fortified with phosphate, potash or nitrogen  
 Claims: Conditions soil, encourages earthworms and beneficial bacteria, increased yield and quality  
 Known Research: South Dakota (1972); Holcomb et al. (1976)

**Siapton**

Ingredients: Extract of animal offal containing 18 amino acids with proteins plus nutrients  
 Known Research: Edmeades (2002)

**Sidekick**

Company: Conklin Co., Inc., 551 Valley Park Dr., Shakopee, MN 55379  
 Ingredients: 0-0-25-17S fertilizer  
 Remarks: Apply at green-up and 7 days after each alfalfa cutting at 2 qt/A  
 Known Research: Hall et al. (2002)

**Slo-go** (See SRC 101)**SM-3**

Company: Atlantic and Pacific Research Inc., P.O. Box 14366, North Palm Beach, FL 33408  
 Ingredients: Cytokinin at activity of 0.80 mg/L  
 Claims: Improves germination, reduces damping off, gives stronger root systems, higher yields and quality, mobilizes nutrients into the leaves  
 Remarks: "World's finest liquid seaweed"  
 Known Research: Dwelle and Hurley (1984); Edmeades (2002)

**Soak 'N Store**

Company: Bio/Syn Research Associates, Inc., P.O. Box 451, West Des Moines, IA 50265  
 Ingredients: Contains "natural chelating humic and algin acids and special strains of soil bacteria and enzymes"  
 Claims: Reduces crusting and erosion; improves moisture holding capacity and drainage; softens soil; increases cation exchange capacity  
 Remarks: Use 8-16 oz/A for field crops; may sometimes use prefix of Harvest-Mor in name

**SOECO Soil Inoculants**

Company: Soil Enterprise Corp., P.O. Box 128L, Stoneville, MS 38776  
 Ingredients: Azotobacter inoculant in peat carrier  
 Claims: Increased yields and quality, earlier emergence, greater root and shoot development, more stress resistance  
 Remarks: Bacteria produce gibberelin and indoleacetic acid  
 Known Research: Jones and Collins (1979)

**Soil+** (See Cytozyme)**Soil-A-Zyme**

Known Research: Grabouski and Wiese, cited in Overdahl (1975)

**Soil Drain**

Company: Complete Green Co., 2066 Westwood Blvd., Los Angeles, CA 90025  
 Claims: Improves soil physical condition and drainage characteristics  
 Remarks: Apparently is a starch-based copolymer; is not a superabsorbent



**Soil-Gard**

Company: Farmcraft Inc., P.O. Box 1431, Des Moines, IA 50305  
 Ingredients: Ca, P, K base with trace elements including Fe, Cu, Mn, Mg, Co, B, Zn, S, Mo, Na, and Cl  
 Claims: Trace element source  
 Remarks: Use 200 lb/A once every 3 years

**Soil Inoculant** (See Agralife)

Company: World Agrisearch Corp., P.O. Box 59202, Dallas, TX 75229  
 Ingredients: Mix of Clostridium, Azotobacter and blue-green algae  
 Claims: Decomposes residues, builds soil humus and accelerates the nitrogen cycle  
 Remarks: Appears to be similar to Agralife, etc.  
 Known Research: Langer et al. (1979, 1980)

**Soil Life Plant Food**

Company: Soil Life Research Co., Box 132, Paw Paw, IL 61353  
 Ingredients: A 5-10-10 fertilizer with Ca (16%), Mg (0.5%), S(6.2%) and small amounts of Cl, Co, Cu, Fe, Mn, Mo, Na, and Zn present  
 Remarks: A naturally mined product with contents resulting from chelation of metals and hydrolyzed proteins

**Soil Life 300**

Company: Stabilizadon Chemicals  
 Ingredients: Ferment (92%), polyoxyethylene ester (2%); alkyl aryl polyethylene glycol (6%)  
 Claims: Increases moisture retention, breaks up compacted soils, releases trapped nutrients  
 Remarks: "Biocatalytic" liquid soil conditioner for in-depth water penetration

**Soil Master**

Company: Soil-Engineering Co., P.O. Box 166, West Palm Beach, FL 33402  
 Ingredients: Micro-biotic-enzyme with trace elements added  
 Claims: Better flavor, growth, higher quality  
 Remarks: Substitute for commercial fertilizer; some effect on N fixation implied

**Soil Nu**

Company: Hoover Soil Service, Gilman, IL 60938  
 Ingredients: Organic compost 32%, minerals 64%, moisture 4%; lists 22 elements present  
 Claims: Higher yield and quality, supplies trace elements; neutralizes alkaline soils

**Soil Pam and Soil Pam L**

Company: Earth Chem, P.O. Box 272627, Fort Collins, CO 80527  
 Ingredients: 90% copolymer of acrylamide/sodium acrylate; "L" formulation is only 30%  
 Remarks: Earthbound and Earthbound L soil stabilizer and mulch tackifier labeled identically

**Soil Penetrant 80**

Company: Grow More, Cadena, CA  
 Ingredients: Nonylphenol polyethoxylate, isopropyl alcohol, oleic acid  
 Remarks: Surfactant  
 Known Research: Feng et al. (2002)

**Soil Rebuilder** (Advertising wording similar to Revive)

Company: Agro Chem Inc., P.O. Box 59225, Chicago, IL 60659  
 Ingredients: Plant by-products, organic extracts and decomposition by-products  
 Claims: Encourage deep rooting, opens compacted soils, improves aggregation

**Soil-Re-New** (Also spelled Soil-Re-Nu)

Company: Bio-Tech Agri Service, Rt. 2, Box 100, Rockwell, IA 50469  
 Remarks: A soil growth regulator and detoxifier; use at 4 oz/A 10-14 days before planting

**Soil Restore, Nutrapathic Soil Restore**

Company: Parametric Associates, Inc., 10934 Lin-Valle Dr., St. Louis, MO 63123  
 Claims: Increases CEC, soil organic matter, and soil microbes  
 Remarks: Soil conditioner with mycorrhizal stimulants added

**Soil Tec Acid**

Company: Bio Soil Tec Management Inc., P.O. 13, Pontiac, IL 61764  
 Ingredients: Carboxyl, phenolic and polyhydric acids 10% (ingredients identical to PGS-10)  
 Claims: Enhances soil and foliar nutritional activity and soil microorganisms; reduces compacted conditions  
 Remarks: A plant growth activator to be used at 1-2 gal/A on soil or 1-2 qt/A foliar

**Soiltrate** (Possible alternative names: Super-Gro)

Company: Farmcraft Inc., P.O. Box 1431, Des Moines, IA 50305  
 Ingredients: Activated compost sludge, soft phosphate, potash, N fixing bacteria and vitamin B12 supplement  
 Claims: Better roots, earlier maturity, helps soil build humus  
 Remarks: For corn use 150-200 lb/A in planter and 200 lb/A broadcast

**Soil Treat** (See IAT Soil Treat)**Soil Treatment** (See National Ag Soil Treatment)**Soil Triggrr** (See Triggrr)**SOL-EZ**

Company: C&E Products Inc., Box 182A, Rt. 3, LeMars, IA 51031  
 Ingredients: Soluble whey extract, kelp, and sulfates of Cu, Mn, Fe and Zn (0.1%) and S (1.5%)  
 Claims: Improves structure, water penetration and creates a better plant environment  
 Remarks: Apply 4 oz/A mixed with 1-2 gal of water; for compacted, wet, gumbo-like soils  
 Known Research: Kansas (1975b, 1976); Randall, cited in Overdahl (1975); Sunderman (1978); Lawless et al. (1981); Sunderman (1983)

**Sonic Bloom**

Company: Don Carlson Scientific Enterprises, Inc., 708 119th Lane NE, Blaine, MN 55434  
 Ingredients: Organic spray of 55 trace minerals and amino acids sprayed while a high-frequency tape is playing  
 Claims: Increased nutrient uptake; increased yields; earlier germination; greater stress resistance  
 Remarks: The sound is to stimulate the uptake of growth-promoting substances and nutrients  
 Known Research: Becker and Ralston (1989)

**Sorba Sprays**

Company: Leffingwell Chemical, Co., Brea, CA 92621

Ingredients: Various foliar sprays containing macro- and micronutrients, e.g. 10-12-10, 2% Zn; 0-16-9, 1% Zn

Remarks: Apply at low rates per acre (such as 1-2 qt/A), sometimes in multiple applications

**Soyboost**

Ingredients: N-P-K, micronutrients, humic acid, plant activators, surfactants

Claims: Increases yield; resists fungal and blight diseases of soybean

**SP-1**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356

Ingredients: Combination of manure tea, compost tea, and humic acid

**Spark** (See Dinoseb)**Spectrum Plus**

Company: Alpha Research and Development

Ingredients: Is a whole fish fertilizer; no grade given

Claims: Increased yield and quality, earlier harvest, and improved soil physical conditions

Remarks: Is not a fish emulsion but whole fish fertilizer

**Sper Sal**

Company: Sotac Corp.

Ingredients: 30% polymaleic acid; 6% linear alkylbenzene sulfonate

Claims: Soil conditioner

**Spewxzyme**

Company: Ehlert Enterprises, P.O. Box 4143, St. Joseph, MO 64505-0143

Claims: Aids in water infiltration and eases tillage

**Spray-N-Grow**

Company: Spray-N-Grow, P.O. Box 2137, 20 Hwy 35 S., Rockport, TX 78382

Ingredients: Micronutrient complex cultured in water base with 18 elements listed, highest is 1026 ppm Fe and 5110 ppm Na

Claims: Greater fruit set; causes up to 200% yield increase; increase beneficial soil organisms

Remarks: Is a "biocatalyst which activates dormant soil microorganisms"

**SPUD Prod**

Company: PROD Inc., P.O. Box 9272, Moscow, ID 83843

Ingredients: 8-25-14

Remarks: Uses 1 oz/250 lb potato seed

Known Research: Secor et al. (1991)

**SRC 101** (Also Slogo, see Extend)

Company: Scientific Research Corp., Box 786, Alva, OK 73717

Claims: Reduces drift; protects herbicides from uv damage, prevents leaching of chemicals

Known Research: Webb (1976, 1977)

**SSO**

Company: Distributors Processing Inc., 17656 Avenue 168, Porterville, CA 93257

Ingredients: Sarsaponin (10%), CuSO<sub>4</sub> as preservative (0.1%)

Claims: Reduces compaction and stress, lowers surface tension and increases cell wall permeability, improves nutrient uptake

Remarks: Advertised for turf and ornamentals

**ST-4**

Company: AgriEnergy Resources, 21417 1950 E. St., Princeton, IL 61356

Ingredients: Combination of manure tea, compost tea, and fulvic acid

**Stabl-U**

Ingredients: 46-0-0-Ca trace derived from urea around a seed of Ca

Claims: More efficient source of N

**Stand**

Company: Stoller Chemical Co., Inc., 8582 Katy Freeway, Suite 200, Houston, TX 77024

Ingredients: 15-0-0 with 8% Ca derived from calcium monocarbamide monohydrogen chloride and urea

Claims: Increases seeding vigor and resistance to root rot diseases

Remarks: Apply 2-5 gal/A in seed furrow at planting

**Stay Phos** (See Trans National Agronomy)**Step 1**

Company: B and S Research Inc., 8092 Comet Rd., Embarrass, MN 55732

Ingredients: Only trace elements listed (Cu 0.05%, Fe 0.10%, Zn 0.05%)

Claims: Apparent microbial detoxifier

**Stimufol**

Ingredients: Mixture of amino acids from plants with NPK and trace elements

Known Research: Edmeades (2002)

**Stimulate**

Company: Stoller Chemical Co., Inc., 8582 Katy Freeway, Suite 200, Houston, TX 77024

Known Research: Oplinger (1990b); Whitney and Gordon (1998); Hall et al. (2002); Pavlista (2002); Schwartz (2002)

**Stockosorb Agro (Agro F)**

Company: Stockhausen Inc., 2401 Doyle St., Greensboro, NC 27406

Ingredients: Potassium polyacrylate (polyacrylamide copolymer)

Claims: Increases water retention in soil; improves yields

Remarks: Agro F is finer granules for use with liquid fertilizers

Known Research: Thompson (1997, 1998b, 1999b, 2000)

**Stockopam (Pam MDL)**

Company: Stockhausen Inc., 2401 Doyle St., Greensboro, NC 27406

Ingredients: Sodium polyacrylate/polyacrylamide

Claims: Strengthens soil cohesion; preserves surface roughness; reduces erosion

Remarks: MDL can be used in both gravity-flow and center pivot applications while regular Pam can be used in only gravity-flow application

**Stress-Plus**

Company: Marketed by Canton Mills, Inc., P.O. Box 465, Minnesota City, MN 55959  
 Remarks: Apparently one of the Harvest-Mor plant regulators

**Stubble Digestor +** (See Cytozyme)**SummerSet**

Company: TerraMax, Inc., 16905 Aberdeen St. N.E., Ham Lake, MN 55304  
 Remarks: Multipurpose foliar fertilizer

**Sunburst**

Ingredients: 5-15-5  
 Remarks: Apply at 1-2 pt/A  
 Known Research: Infante-Casella et al. (2002)

**Sun-Down plus S**

Company: Sulfa-Mate Products Co., P.O. Box 2457, Waterloo, IA 50704  
 Ingredients: A 11-10-3-10S fertilizer  
 Claims: Advertised primarily as sulfur source  
 Remarks: For corn apply 1 qt/A at planting and reduce starter 50% and foliarly apply 1 qt/A

**Sun-Net Foliar Spray**

Company: Bio-Syn Research Associates, Inc., P.O. Box 451, West Des Moines, IA 50265  
 Ingredients: Derived from marine algae containing trace elements and alginic acid  
 Claims: Increases yield, resistance to stress and plant vigor  
 Remarks: "It is similar to Germ 'N Boost with a few modifications"

**Sunrane** (Possible alternative name: Eco-Gro)

Company: Sunrane Inc., 777 Conrad Tower, 444 Cedar St., St. Paul, MN 55101  
 Ingredients: 8-8-8 fish and seaweed fertilizer (4% seaweed)  
 Remarks: Ideally balanced for leafy feeding for most field crops; applied at 1 qt/A foliar; may be similar to Eco-Gro and Greenworld

**Super 28 and Super 28+**

Company: Cropchem Mfg. Co., P.O. Box 1473, Decatur, IL 62525  
 Ingredients: 18% urea ammonium nitrate solution fortified with 3% humic derivatives; same for 28+ but also includes Fe, 0.3%; Mn, 0.4%; and Zn, 0.3%  
 Claims: Stimulates plant activity and rate of weed kill  
 Remarks: Apparently to be used as adjuvant with herbicides at rate of 1-2 qt/A

**Super Action**

Company: U.S. Ag Associates, Inc., P.O. Box 770084, Houston, TX 77215  
 Ingredients: Flowable sulfur (64% S) and humic acid (0.25%)  
 Claims: Increase yields and improve fertilizer efficiency

**Super-Bio**

Company: Soil Enterprise Corp., P.O. Box 128L, Stoneville, MS 38776  
 Ingredients: Manure leachate plus N fixing bacteria

Remarks: Liquid organic soil conditioner; may be other products from different companies using the same name

Known Research: Lessman and McCutchen (1980)

### **Superboost +, Superboost I and Superboost II**

Company: Cropchem Mfg. Co., P.O. Box 1473, Decatur, IL 62525

Ingredients: These are 5-15-0 with complexed plant activators and auxiliary agents plus vegetable oils (+), soybean oil (I) or corn oil (II); small amount of micronutrients also present Fe 0.4%, Mn 0.2%, Zn 0.3%

Claims: Helps plant reproduction, build soil structure, increase nutrient uptake and maximize yields

### **Super-Dew**

Company: Bio-Catalytic Corp.

Ingredients: Unspecified biological catalyst in clear bluish solution

Claims: Allows plants to use nutrients more effectively

### **Superfloc A-836**

Company: Cytec Industries Inc., 5 Garret Mountain Plaza, West Patterson, NJ 07424

Ingredients: 80% acrylamide/sodium acrylate copolymer

Claims: Reduces erosion during furrow irrigation

Remarks: Apply 1 lb in irrigation water

### **Super-Gro** (Possible alternative name: Soiltrate)

Company: Northern Field Seed Co., Winona, MN 55987

Ingredients: Activated animal compost, 40% soft phosphate, 20% glauconite, N fixing bacteria and Vitamin B12 supplement

Claims: Faster germination, better roots, earlier maturity

Remarks: Wording in flyer same as with Soiltrate

Known Research: South Dakota (1960, 1961); Walsh (1965)

### **Super-Hume**

Company: National Ag Products Development, Inc., 1235 100th St. SE, Byron Center, MI 49315

Ingredients: Humic acid concentrate extracted from leonardite

Claims: Acts as a growth stimulant, catalyst and buffer

Remarks: 1 qt/A replaces 200-500 lb/A of dry humate material

### **Super-Hume + Ca**

Company: National Ag Products Development, Inc., 1235 100th St. SE, Byron Center, MI 49315

Ingredients: Base of humic acid extracted from leonardite with chelated Ca added (8% Ca)

Claims: Stimulates soil bacteria; helps unlock soil Ca

### **Supernate**

Company: Ro-Chem Corp., Houston, TX

Ingredients: Microbial inoculant and activator

Claims: Stimulate native organisms

Known Research: Weaver et al. (1974); Weaver (1979)

**Supernatant**

Known Research: Murdock et al., cited in Overdahl (1975)

**Super Shot 40**

Company: Cropchem, Mfg., T-50 Scientific Systems, Inc., Box 1473, Decatur, IL 62525

Ingredients: 15% active humic acids and adjuvant (alkyl aryl polyether alcohol)

Claims: Stimulates crop vitality and growth; reduces amount of herbicide needed; increases tolerance to withstand foliar burn

Remarks: To be used in combination with herbicides except 2,4-D or other phenoxy types

**Super Slurper**

Ingredients: Acrylic compounds chemically linked to cereal grain starches

Remarks: Is a super absorbent polymer; may have application in greenhouse or horticultural work

Known Research: Stone (1981)

**Super Start +**

Company: Cropchem, Box 1473, Decatur, IL 62525

Ingredients: 3-9-0 with plant activators and auxiliary agents

Claims: Increases germination, roots, nutrient uptake, moisture holding capacity and earthworm and bacterial population

Remarks: Use at 3-4 qt/A in band or 3-5 gal/A broadcast

**Sure-K**

Company: Agro-Culture Liquid Fertilizer, 3026 W. M-21, P.O. Box 150, St. Johns, MI 48879

Ingredients: 2-1-6

Claims: High-performance potassium fertilizer; low salt, non-chloride compound

**Surge**

Company: Helena Chemical Co., Memphis, TN 38137

Ingredients: Alkanolamine salts of dinoseb (2-sec-butyl-4-,6-dinitrophenol), 1.45%

Claims: Growth stimulant

**Sur-Tec**

Company: Tech Ag, Inc., 71912 Nighthawk Trail, P.O. Box 755, McCook, NE 69001

Ingredients: Concentrated liquid ammonium sulfate, anti-foaming agent, pH buffer, non-ionic surfactant, water softener, plant stickers, plant penetrators, enzyme crop protector

Claims: Maximizes efficiency of chemical spray solutions

**Symbex** (Alternative name IAT Soil Treat)

Company: Agro K Corp., 6120 Earle Brown Dr., Minneapolis, MN 55430

Ingredients: Microbial culture of *Actinomyces thermophilus*, *Azotobacter chroococum*, *Mixobacteria* sp., *Streptomyces*, *Fulvourides* and *Bacillus* sp. in a whey base

Claims: Stimulates residue decomposition and accelerates non-symbiotic N fixation, boost yields, increase soil humus

Remarks: Usually used in combination with Symcoat, Symspray, and Symbooster for total program

Known Research: Langer and Randall (1979); Kelling (1980); Kelling et al. (1979a, 1979b, 1980); Boswell (1981); Kallis (1981); Nelson et al. (1981); Randall (1981); Wolkowski and Kelling (1983); White and Sanderson (undated)

**Symspray** (See IAT Foliar Spray)

**Symcoat** (See IAT Seed Treat)

Known Research: Wolkowski and Kelling (1983)

**Symbooster** (See IAT Soil Treat)

Known Research: White and Sanderson (undated)

**T-22 PlanterBox**

Company: BioWorks, Inc., 122 North Genesee St., Geneva, NY 14456

Ingredients: *Trichoderma harzianum*, Rifai strain KRL-AG2

Claims: Controls plant diseases

Remarks: Biological fungicide

Known Research: Nafziger (2001)

**Terralyt Plus**

Company: Marketed by North America Petroleum, 9325 N. 107th St., Milwaukee, WI 53224

Claims: Increases yields and quality; reduces fertilizer need; is a biostimulant; increases nutrient uptake

Remarks: Claims to be a soil reactivator which has an electrolytic effect in the soil and increases the earth's electrical field

Known Research: Schulte et al. (1990)

**Terramate**

Company: Bio-Line Inc., 9201 Penn Ave. S, Suite 26, Minneapolis, MN 55431

Ingredients: Concentrated liquid humate derived from leonardite and six species of seaweed fortified with soda ash, MgSO<sub>4</sub>, NH<sub>4</sub>OH, Ca(OH)<sub>2</sub>, and castor oil

Claims: Stimulates soil organisms; releases soil nutrients; releases excess soil chlorides

Remarks: Recommended to apply 1 pt/A every 6 weeks during growing season

**Terra-salvo** (Apparently is similar to Agralife)

**Terra Soft**

Company: TerraMax, Inc., 16905 Aberdeen St., N.E., Ham Lake, MN 55304

Ingredients: Fertilizer supplement with solubilizer

Remarks: Useful as wetting agent and soil penetrant

**Terra-sorb**

Company: Industrial Services International, Inc., P.O. Box 10834, Bradenton, FL 33507

Ingredients: Gelatinized starch-hydrolyzed polyacrylonitrile graft copolymer using KOH

Remarks: Is a super absorbent polymer; suggested field use at 1-3 lb/100 running ft applied with starter fertilizer

**Thad's B-4**

Company: Thad, Inc., R#1, Box 268, Arcadia, WI 54612

Ingredients: Liquid fish, urea, ammonium polyphosphate nitrate and marine gels

Claims: Promotes growth and high yields

Remarks: For corn, use 1 qt/A with starter; 1 qt/A foliar



**Thrust**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772  
 Ingredients: Zinc sulfate and organic acids (2% Zn)  
 Claims: Reduces plant stress from herbicide applications

**TJ Micromix**

Company: TJ Technologies, Inc., 805 32 nd Ave., Brookings, SD 57006  
 Ingredients: Granular base mix containing calcium, 2%; magnesium, 0.8%; sulfur, 8%; boron, 0.35%; copper, 0.8%; iron, 1.8%; manganese, 1.5%; zinc, 5.5% or in liquid chelate containing calcium, 0.7%; magnesium, 0.3%; boron, .1%; iron, 0.6%; manganese, 0.5%; zinc, 0.9%  
 Claims: Consistent yield response; easy to apply  
 Remarks: Best used in a starter fertilizer program  
 Known Research: Bly et al. (1997c, 1999)

**T.M. Fertilizer**

Company: Gyro Products Inc., P.O. Box 7146, Colorado Springs, CO 80933  
 Ingredients: An organic trace mineral fertilizer from “marcasite clay” with guaranteed analysis of B 0.02%, Co 0.0028%, Cu 0.12%, Fe 2.5%, Mn 0.24%, Mo 0.0005%, Zn 0.48%, S 2.50%  
 Claims: Stimulates microorganisms, reduces N needs, builds soil physical condition, increases plant resistance to pests  
 Remarks: Normal rate 200 lb/A; “Clanite” base releases nutrients as needed

**Touchdown**

Company: Ag Spectrum Company, P.O. Box 215, 602 First St., DeWitt, IA 52741  
 Ingredients: Contains 2% Ca, 4% S, 0.15% B, 0.005% Cu, and 0.1% Fe, Mn and Zn derived from soluble potassium; Cu, Fe, Mn, Zn chelates, EDTA, ammonium thiosulfate, and sodium organic borate complex  
 Remarks: “Designed to provide necessary nutrients for a maturing crop;” normal rate is 5 lbs/A made into solution

**TRA 0155**

Company: Terra Industries, Inc., Bloomington, IL  
 Known Research: Kelling et al. (1998)

**Trans National Agronomy**

Company: Trans National Agronomy LTD, 470 Market St. SW, Suite 101, Grand Rapids, MI 49503  
 Ingredients: A variety of products including: Trans Crop, a microscopic cover crop; Trans Flo, a soil-water adjuvant containing ammonium laureth sulfate; Trans Hume, an adjuvant for herbicides and liquid fertilizer; Trans Wetter, a compatibility agent; Nitro Mike, a stubble digester; Trans Sol-U Blend, dry soluble fertilizers, Trans Cal, liquid calcium, 8% Ca; Trans Sul, liquid sulfur, 26% S; Stay Phos, a 0-16-0 to be applied at 1 gal/A  
 Remarks: Some products appear to be similar to others marketed under different labels

**Trazco** (Wide variety of products including Soil Penetrant; 2 Plus Soil Inoculant; ST170 Seed Treatment; ST171 Seed Treatment; Calciton Zymate; Wetting Agent; Mg, B, Fe, Mn, Zn and Cu Zymates; All Crop Zymate; and B79 Nutrient Spray)  
 Company: CDA Inc., 1747 N Country Club Rd., Indianapolis, IN 46234  
 Ingredients: Varies with product, micronutrients in chelated form  
 Claims: Claims vary with product  
 Remarks: Nutrient sprays have guaranteed analysis but used at very low rates, e.g., B79 Nutrient spray is 12-6-15 to be used at 4 oz/A  
 Known Research: Kelling and Weis (1978); Walsh and Moncrief (1978); Kelling et al. (1979a)

**Tri 40 Liquid Plant Food**

Company: Scope Chemicals  
 Ingredients: 10-20-10 made with KOH  
 Claims: Low salt fertilizer

**Triacontonal**

Ingredients:  $[\text{CH}_3(\text{CH}_2)_28\text{CH}_2\text{OH}]$   
 Remarks: Plant growth regulator  
 Known Research: Reis et al. (1978); Regehr (1982)

**Trigrrr**

Company: Westbridge Agricultural Products, 9920 Scripps Lake Dr., Suite 103, San Diego, CA 92131  
 Ingredients: 0.012% cytokinin as kinetin derived from a blend of fermentation products, marine algae derivations, an aqueous plant extract, natural saponins and micronutrients  
 Claims: Increases yields  
 Remarks: Another label is on file that indicates it contains low amounts of Mg, Fe, Mn, and Zn; use at 2-8 oz/A in multiple applications  
 Known Research: Spidle (1987b); Henninger (1999; 2000); Edmeades (2002); Infante-Casella (2002)

**Triton X-100**

Company: Union Carbide, Houston, TX  
 Ingredients: Octylphenol ethoxylate (a nonionic wetting agent)  
 Known Research: Karagunduz et al. (2001)

**Tronic**

Remarks: Apparently a wetting agent  
 Known Research: Doersch (1979)

**Turface**

Company: IMC, 666 Garland Place, Des Plaines, IL 60016  
 Ingredients: Montmorillonite clay  
 Remarks: Used for soil conditioning

**Turf Tonic**

Company: National Chemsearch, 2727 Chemsearch Blvd., Irving, TX 75062  
 Ingredients: Synthetic surfactants  
 Claims: Prevents compaction, eliminates runoff, and dry spots

**Turf Touch**

Company: Custom Chemicides, P.O. Box 11216, Fresno CA 93772  
 Ingredients: Organically complexed nutrients, amino acids and enzymes  
 Claims: Improves growth and activity of microorganisms

**Turf Vigor**

Company: Sybron Biochemical, 111 Kesters Mill Rd., Salem, VA 24153  
 Ingredients: A 9-3-6 microbe/nutrient complex including kelp extract and humic acid  
 Claims: Improves plant nutrient use efficiency and resistance to stress

**UAP 86A**

Company: United Agri Products, Greeley, CO  
 Known Research: Whitney and Lamond (1988)

**ULTRA-TILL**

Company: National Ag Products Development, Inc., 1235 100th Street S.E., Byron Center, MI 49315  
 Remarks: A soil activating and nutrient releasing agent; use at 1 gal/10 acres

**Vantage**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772  
 Ingredients: Formulated from organic acids, natural plant extracts, nonylphenalethoxylate  
 Claims: A nonionic spray adjuvant

**VHC** (See Phoenix VHC)**Visible**

Company: AgTime Company, Inc., Jennings, FL 32053  
 Ingredients: Secondary alcohol ethoxylates  
 Claims: Soil penetrant; root-uptake enhancer; drought-stress reducer

**Vitazyme**

Company: Vital For Health/PleazAll, Inc., 302 N. Cotton St., Gladewater, TX 75647  
 Ingredients: Contains "metabolic trippers"  
 Claims: Increases crop yields and profits; improves crop quality; reduces fertilizer nitrogen inputs; hastens germination and maturity; improves soil structure and infiltration

**VolCanaPhos**

Company: Midwestern Bio-Ag, 10851 Hwy. ID, Box 160, Blue Mounds, WI 53517  
 Ingredients: Igneous apatite, 30-40% P<sub>2</sub>O<sub>5</sub>  
 Claims: Stable source of phosphorus; stimulates biological activity and growth

**Watch Us Grow**

Company: Stephen Follett Co., Inc., Egg Harbor, WI 54209  
 Ingredients: 8-8-8 fertilizer with six micronutrients (not on label) and Fol-ade (a compound of eight ingredients that makes the elemental plant foods "do things they normally do not do")  
 Claims: Increased nutrient efficiency and availability; higher yields; increased quality; shock resistor

Remarks: Works on all plants; total of 1 gal/A recommended for corn  
 Known Research: Kelling et al. (1988d)

### **Water Crystals**

Company: Water Crystals Inc., 2929 N. Prospect, Suite 104, Colorado Springs, CO 80907  
 Ingredients: A cross-linked polymer  
 Claims: Helps plants overcome drought  
 Remarks: A super absorbent

### **Water-In**

Company: Water In, Lodi, CA  
 Ingredients: Alkyl polyethylene glycol ether  
 Remarks: Surfactant  
 Known Research: Feng et al. (2002)

### **Western WSCCO Soil Conditioner**

Known Research: South Dakota (1964; 1964)

### **Wet-Sol 99 and Wet-Sol Gro**

Company: Schaeffer Mfg. Co., 102 Barton St., St. Louis, MO 63104  
 Ingredients: Wet-Sol 99 contains alkylphenyl-hydroxypolyoxyethylene; Wet-Sol Gro contains alkylphenyl-hydroxypolyoxyethylene, growth enzymes, bio-stimulants, B-complex vitamins and fermentation products  
 Claims: Breaks down surface tension of water; increases water's penetrative ability; increases nutrient availability and yield  
 Known Research: Murdock and Talley (1986); Khan et al. (2000a; 2001); Kelling and Lowery (2001); Thornton et al. (undated)

### **Wex**

Company: Conklin Co., 4660 W. 77th St., Minneapolis, MN 55435  
 Ingredients: Alcohol ethoxylates 21.68%; propylene glycol 8.87%; dimethylpolysiloxane 0.85%; inert 68.6%  
 Claims: Makes water wetter, superior root development, faster crop development, increased yields, more root hair formation, greater exposure to available soil nutrients and moisture  
 Remarks: Applied at 1-2 pt/A. Has "NRA" -- formerly "nutrient release agent" now "nutrient related action"  
 Known Research: Crookston (1977); Vitosh and Hyde (1977); Crookston, Minn. (1978); Fenster et al. (1978); Sunderman (1978); Vitosh et al. (1978); Doersch (1979); Haby et al. (1980); Kelling et al. (1980); Laughlin et al. (1980); Lessman and McCutchen (1980); Hunt and Baker (1981); Lawless et al. (1981); Laughlin et al. (1982); Stone (1982); Penas (1983); Sunderman (1983); Wolkowski et al. (1983); Wolkowski et al. (1985a); Frank (undated); Murdock (undated); Robertson (undated)

**Wil-GRO Formula 67**

Company: Distributed by Trazco Inc., Box 1612, Garland, TX 75074  
 Ingredients: Soluble whey extract, kelp, lactic acid with Cu, Fe, Zn, and Mn  
 Claims: Soil more porous, better growth and yields; chelates metals  
 Remarks: Use 1/2 to 1 pt/A; "A biodegradable ternary eutectic soil additive"

**WillArd's WATER** (See Catalyst Altered Water; Nature's Nutrient; LA Normalizer)

Company: C.A.W. Industries, Inc., 5001 Sturgis Rd., Rapid City, SD 57701  
 Ingredients: Water, 99.12%; CAW Micelle (sodium meta silicate, sulfated castor oil, CaCl<sub>2</sub>, MgSO<sub>4</sub>), 0.88%; trace of soluble refined lignite  
 Claims: Acts as a "normalizer" on living plants; need 1/3 the amount of fertilizer normally applied  
 Remarks: Apply at 1/10 gal/A

**Wonder Grow**

Company: World-wide Wondergrow Inc., P.O. Box 372, Albuquerque, NM  
 Ingredients: 46% soluble organic matter, 15.3% humic acid and smaller amounts of plant nutrients  
 Claims: Acts as a soil conditioner and stimulates nutrient use and plant growth  
 Remarks: Apply 600-1000 lb/A preplant or sidedress for corn; "The real magic of soil conditioners"

**Wonder Life** (Also produce feed additives)

Company: Wonder Life Enterprises Inc., Hwy. 21 W, P.O. Box 3746, Bryan, TX 77801  
 Also Wonder Life Corp. of America, 5875 Fleur Drive, Des Moines, IA 50315  
 Ingredients: Fortified humus (2-2-2) consisting of decomposed organic matter, aerobic bacteria, and trace minerals including S and Ca (1%), Mg (0.5%), Fe (0.1%), Cu, Mn and Zn (0.05%), and B (0.02%)  
 Claims: Reduced energy inputs, superior quality foods and feeds, improved soil fertility, increased profit  
 Remarks: Apply 150 lb/A in row or 250 lb/A broadcast. Use instead of pesticides and fertilizers  
 Known Research: Overdahl and Ankeny, cited in Overdahl (1975); Holcomb et al. (1976); Penas (1983)

**World Wide Humates**

Company: World Wide Farm Markets, Minot, ND 58701  
 Ingredients: Organic matter 63.8%; 4.6% K; 2.73% S; 2% Ca; 3.8% Si; 0.6% P; 1.65% N and 13 others listed  
 Claims: Activates and aerates the soil, aids in percolation  
 Remarks: Natural nitrogen in humates is 12-17% more potent than synthetic N

**WRG-1000 Ag Adjuvant**

Company: Westbridge Research Group, 8950 Villa La Jolla Drive, Suite 2130, La Jolla, CA 92037  
 Ingredients: Blend of salts of carboxylated water soluble organic anionic polyelectrolytes  
 Claims: Reduces soil compaction; improves permeability and water movement; improves root formation; improves soil structure; reduces erosion; increases water retention

**WUXAL Suspensions** (Tuber and Calcium)

Company: Aglukon Agri-Products, 50 N. Harrison Ave., Congers, NY 10920  
 Ingredients: 10% N and mixture of chelated micronutrients; calcium also contains 10.7% Ca  
 Remarks: Use at 1-5 pt/A in multiple applications

**Wy-Mite**

Company: Processed by W.J. Richards, Thermopolis, WY 82443  
 Ingredients: Ca as CaCO<sub>3</sub> 97.3%; Mg as MgCO<sub>3</sub> 1%, S as CaSO<sub>4</sub> 0.5% and 21 other elements listed  
 Claims: Reclaims some unproductive soil, replaces needed soil minerals

**Wyomite**

Company: NVAM, Inc., 101 W. 6th St., Topeka, KS 66603  
 Ingredients: Ca 20%, Mg 2.5%, S 10.5%, Fe 0.8%, Na 0.16%, Zn 0.6%  
 Claims: Sulfur and calcium source  
 Remarks: Deposit and plant operation in Thermopolis, Wyoming. Mined from deposits caused by evaporation from mineral hot springs

**X-Cyte**

Company: Stoller Enterprises Inc., 8580 Katy Freeway, Suite 200, Houston, TX 77024  
 Ingredients: 0.04% cytokinin (as kinetin)  
 Claims: Reduces plant stress  
 Remarks: Apply 1 pt/A

**YEA!**

Company: Natural Ag, Div. of Bentech Laboratories, Inc., 14424 S.E. Industrial Way, Clackamas, OR 97015-9696  
 Ingredients: Poly-D-glucosamine, a naturally occurring polymer derived from shells of crustaceans  
 Claims: Increased yields, fuller crown and stronger stem, enhanced root system, help control soil erosion problems  
 Remarks: Originally registered for wheat; may have expanded to other crops; to be applied as a seed treatment at 16 oz/100 lb seed  
 Known Research: Spidle (1987a); Grabe et al. (1988); Reeves and Bonnemann (1988)

**Yeald** (See ACA)

Remarks: Apparently name for ACA when marketed in United Kingdom

**Z93** (Alternative identification of GroZyme)

Known Research: Arriaga and Lowery (2000)

**Zeolite**

Company: Fugi Zeolite LTD, Natori Blvd., 2F Siginami-ku, Tokyo, JAPAN  
 Ingredients: May be the mineral zeolite. Analysis according to flyer SiO<sub>2</sub> 63.25%, Al<sub>2</sub>O<sub>3</sub> 14.61%, CaO 3.95%, MgO 0.54%, FeO 1%, K<sub>2</sub>O 2%, NaO 3.17%  
 Claims: Neutralizes acid soils, inspires microorganisms, absorbs gas and water molecules, increases fertilizer efficiency 2 to 3 times, increases stress resistance

**Zinc Ten**

Company: Custom Chemicides, P.O. Box 11216, Fresno, CA 93772  
Ingredients: 10% Zn as zinc sulfate, organic complexing agents  
Remarks: Apply 1 qt/A

**Zintrac 700**

Company: Phosyn Plc., The Industrial Estate, Pocklington, York, YO4 2NR, United Kingdom  
Ingredients: 700 g/L zinc  
Remarks: Much lower rate needed (14-28 oz/A)

**Zonix**

Company: Jeneil Biosurfactant Co., 400 N. Dekora Woods Blvd., Saukville, WI 53080  
Ingredients: Rhamnolipid biosurfactant  
Claims: Functions as a biofungicide against zoosporic plant pathogens  
Remarks: Apply at concentration of 85-125 ppm diluted with water at early stages of plant growth and every 5 days thereafter

**ZTZ**

Company: Terra Research  
Ingredients: Fermentation product of cow manure and urine controlled by algae and bacteria cultures  
Claims: Inoculates soil with beneficial bacteria and algae, activates soil, increases water penetration, increases porosity, better germination and growth, reduces damping off  
Remarks: Green, odorless solution applied at 30 gal/A

**ZyDox**

Company: Enviro Consultant Services, Evergreen, CO  
Ingredients: Chlorine dioxide (50-500 ppm)  
Claims: Biocide against crop diseases  
Known Research: Lee and Todd (undated)

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\* Hereafter abbreviated as In NCR-103... The original compendium of Research Reports on Use of Nontraditional Materials for Crop Production was published in 1980. Supplement 1 to this compendium was published in 1983, and Supplement 2 was published in 1992. These publications are out of print. You can now find these references in the electronic on-line and searchable compendium web site located at:

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