

X-PAND™

Plant Growth Regulator Solution



ACTIVE INGREDIENT: Gibberellic acid (GA3) ... 12.00%

OTHER INGREDIENTS: 88.00%

Total: 100.00%

This product contains approximately 0.141 Oz. /4.0 grams active ingredient per fluid ounce (30 mL).

EPA Reg. No. 57538-63

EPA Est. No. 57538-TX-2

EPA Est. No. 57538-IA-1

EPA Est. No. 57538-FL-1

KEEP OUT OF REACH OF CHILDREN CAUTION

1.0 FIRST AID

If in eyes

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or are going for treatment. For general information on product use, etc., call the National Pesticides Information Center at 1-800-858-7378. For emergencies, call the Poison Center at 1-800-222-1222.

FOR CHEMICAL EMERGENCY:

Spill, leak, fire, exposure or accident, call CHEMTREC 1-800-424-9300.

Net Contents: 9.4 lb/Gallon or 1.13 kg/Liter

Not registered for use in California on the following: Blueberry, carrots, celery (aerial application), cherry, cranberry, cotton, corn, soybean, Hybrid Rice seed, Stone fruit, spinach, Italian Plums, Turf, flowers, and ornamentals.

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2.0 PRECAUTIONARY STATEMENTS

2.1 Hazards To Humans And Domestic Animals

CAUTION. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Wear the appropriate Personal Protective Equipment (PPE).

2.2 Personal Protective Equipment

Applicators, mixers, loaders, and other handlers must wear:

- Long-sleeved shirt and long pants, and
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

2.3 User Safety Recommendations

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothes.

2.4 Environmental Hazards

For terrestrial uses: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean highwater mark. Do not contaminate water when cleaning equipment or disposing of equipment wash water or rinsate. Exposed treated seed may be hazardous to birds and other wildlife. Dispose of all excess treated seed and seed packaging by burial away from bodies of water.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide application.

4.0 AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours unless wearing appropriate PPE.

5.0 NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within-the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses. Do not enter without appropriate protective clothing until sprays have dried.

6.0 GENERAL INSTRUCTIONS

Use only as directed. Read the label thoroughly before making applications.
IMPORTANT- Do not apply this product through any type of sprinkler irrigation system.

6.1 Application Instructions

X-PAND contains gibberellic acid, which is an extremely potent plant growth regulator. When applying plant growth regulators, deviations from the label directions may result in undesirable effects such as excessive fruit drop, and excessive growth. Always consult the State Extension Service Specialist in your area for the spray regimen best suited to your conditions.

- Do not apply to plants under pest, nutritional or water stress.
- When a range of rates is indicated, use the concentration and spray volume recommended locally by the State Extension Service Specialist.
- Thorough spray coverage must be achieved. All parts of the plant or crop must receive spray coverage. Prepare application solution by mixing the required amount of product with water in a clean, empty spray tank. (See following sections of this label for specific mixing directions) Discard any unused spray material at the end of each day following local, state or Federal Law.
- Water pH must be around neutral and always below 8.5.
- To increase absorption of mix by plants apply X-PAND under slow drying conditions (cool to warm temperatures, medium to high relative humidity and no wind) Make night-time applications when day-time temperature/humidity are not conducive to slow drying conditions (sunny, warm low humidity where fast drying will occur).
- Product persistence: X-PAND must be reapplied if significant (one quarter inch or more) rain occurs within 2 hours of application.
- Compatibility: Refer to the spray guidelines for ingredients known to be compatible with this product. If the tank mix combination has not been used previously, contact a Stoller representative for guidance or conduct a jar test to test for compatibility. To conduct a jar test, use a small jar and mix a small amount of dilution to be sprayed, combining all ingredients in the same ratio as the anticipated use. Indications of incompatibility usually will appear within 5 to 15 minutes after mixing. If any indications of physical incompatibility develop, do not use this mixture for spraying. To ensure maximum crop safety and product performance, follow all precautions and limitations on this label and labels of products used in the tank mixture with X-PAND.
- No harvest interval is required for this product. Observe the 4-hr. REI.

7.0 SPRAY GUIDELINES FOR GRAPES

For all grapes, application shall be by ground sprayer. It is important to wet all flower clusters or berries thoroughly. For cultivar specific spray rates and timings, see accompanying tables.

7.1 Seedless Table Grapes

CLUSTER STRETCH SPRAYS	
Objective/Benefit	Application Timing/Instructions
For cluster elongation and loose cluster forms. To reduce costs of thinning, allow better air circulation to aid in the control of bunch rot, and increase light penetration to aid in sugar development.	Make one to three applications before bloom when flower clusters are 2 to 7 inches long.
Crop/Cultivar	Rate (oz. product/acre)
Perlette Seedless	2-6.25 oz.
Flame Seedless	
Thompson Seedless	
Raisin	
Other Seedless Grapes	Not applicable
BERRY THINNING SPRAYS	
Objective/Benefit	Application Timing/Instructions
For decreased berry set, reduced hand-thinning costs, and hastened maturity.	Make one to four applications during bloom as needed. Subsequent sprays are to be made 1 to 7 days after the first application.

Crop/Cultivar	Rate (oz. product/acre)
Perlette Seedless	Not applicable
Flame Seedless	0.7-4
Thompson Seedless	2-5
Raisin	0.7-3
Other Seedless Grapes	0.125-3
NOTE: Only 1-2 applications for "Other Seedless Grapes." For "Other Seedless Grapes" use caution as some of the new cultivars are very responsive and will overthin easily.	
A grower shall consult the local specialist before thinning cultivars with which he has no familiarity.	

BUMP SPRAY – For Thompson Seedless	Objective/Benefit	Application Timing/Instructions
To help initiate the beginning of the berry growth period.		Make one application of 4-6 oz. product per acre during the period between the last thinning spray and the first sizing spray.
BERRY SIZING SPRAYS		
For larger berries and larger clusters when used in conjunction with established girdling and thinning practices.		Make one to four applications beginning when the average berry size reaches "target" diameter (see below). Timing of the subsequent sprays will be dictated by experience in the vineyard and temperatures occurring between sprays. Sprays made after 15-20 days from the first sizing spray are less effective.

Crop/Cultivar	Target Berry Diameter*	Rate (oz. product/acre)
Perlette Seedless	4-5 mm	8-27
Flame Seedless	6-9 mm	5-27
Thompson Seedless	3-5 mm	8-27
Raisin	3-5 mm	1-5
Other Seedless Grapes	3-14 mm	2-15

*Target average berry diameter for the first application.

NOTE: In some growing regions and for some cultivars, high amounts of gibberellic acid will reduce fruitlessness (cluster counts) the following year. High amounts of gibberellic acid will also delay berry skin color development, sugars accumulation and overall maturation. A grower shall consult the local specialist before sizing cultivars with which he has no familiarity.

7.2 Seeded Grapes

BERRY SIZING SPRAYS	Objective/Benefit	Application Timing/Instructions
To increase berry size in listed cultivars; and also to reduce berry shrivel in Emperor.		Make one application during the indicated berry diameter range. Apply to a whole vine or as a cluster spray or dip.
Crop/Cultivar	Berry Diameter (mm)*	Whole vine spray. Rate in oz. product/acre
Emperor	12-16	5
Red Globe	12-18	
Calmeria	12-16	
Christmas Rose	12-16	
Rogue	12-16	
Queens	12-15	

*Predominant average berry diameter for this application.

NOTE: The whole vine application will reduce fruitfulness (cluster counts) the following year.

High amounts of gibberellic acid will also delay berry skin color development, sugars accumulation and overall maturation.

A grower shall consult the Stoller representative or local specialist before sizing cultivars with which he has no familiarity.

Objective/Benefit	Application Timing/Instructions
To increase berry size.	Make one application 3-5 days after full bloom, but before shatter begins.
Crop/Cultivar	Rate (oz. product/acre)
Black Corinth (Zante Currant)	0.25-3

8.0 SPRAY GUIDELINES FOR CITRUS

For citrus, apply in enough water to ensure thorough fruit wetting. In most cases, this application will cause some drop of older mature leaves; this drop of older leaves is inconsequential. However, application to trees of low vigor or under stress (pest, nutritional, or water, etc.) will cause severe leaf and/or fruit drop. Do not apply in white wash sprays in which wash sprays which could cause a high pH in the spray tank. Applications of copper fungicides and/oil within three weeks (before or after) the X-PAND application will result in significant leaf drop and fruit drop.

8.1 Citrus: Field Applications

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Navel Orange	To delay rind aging, reduce physiological disorders (e.g., rind staining, water spotting, sticky or tacky surface, puffy rind and rupture under pressure), and aid harvesting.	4-12	<p>Make one or two applications as either the high dose or the lower dilute spray depending on the condition of your plants.</p> <p>1) Early application: spray approximately 2 weeks prior to color break (typically August – November). This timing causes the greatest delay in rind aging and produces the firmest rind possible.</p> <p>AND/OR</p> <p>2) Late season spray: one application after desired color (typically October – December). Late sprays cause re-greening.</p>
Valencia Orange (For California and Arizona use only)	To reduce rind creasing and to delay rind aging and softening.	10-20	Make a single application as a concentrate or dilute spray in August to October to target crop of young fruit.

NOTE: Do not apply the early spray to groves that may be harvested early, as fruit coloring will be delayed. Do not apply from January through July, as production will be reduced the following year. Slower color development and increased re-greening of mature fruit is to be expected in crop intended for harvest. After marketable color is achieved, treatment effects will be reduced the longer treated fruit remains on the tree.

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
All round Oranges (For Florida use only)	To delay aging and softening of the rind, and to reduce creasing and puffiness.	5-15	Make a single application in August to October to trees with a target crop of young fruit.
Lemon/Lime	To decrease the amount of small ripe fruit and produce a more desirable larger fruit.	2.5-8	Make a single application when target crop is $\frac{1}{2}$ to $\frac{3}{4}$ full size, but still green.

NOTE: When applied two years in a row, a larger harvest of desirable fruit will occur.

Tangerine Hybrids: Orlando, Robinson, Minneola, Sunburst, and others	To delay rind aging, puffiness, and softening, and to increase peel strength of tangerine hybrids.	5-10	Make one spray application two weeks prior to color break. Apply as a dilute spray.
NOTE: Do not apply if early harvest is planned. Do not apply after coloring as pre-harvest rind staining may occur. Application during coloring causes variation in rind color development.			
Grapefruit	To delay rind aging (e.g. puffiness, softening, and orange coloration) prevent preharvest drop of mature fruit, increase peel strength, reduce water loss during storage, and aid harvesting.	4-12	Make one or two dilute spray applications in sufficient water to ensure coverage. Do not exceed .019 oz. product in spray solution. EARLY: Make application two weeks prior to color break. Apply as a dilute spray (Aug-Sept). AND/OR LATE: Make application after marketable color has developed (Oct-Dec).
NOTE: Do not spray groves that may be harvested early since fruit coloring will be delayed. Treated fruit will re-green if allowed to remain on the tree for extended periods (two weeks or more). Application made after December, or when trees begin to break dormancy, will adversely affect new crop. Do not use concentrate sprays. Results will vary from season to season depending on environmental conditions. The delay in rind aging is greatest when spray is applied before color change. This spray timing produces the firmest rind possible.			
Star Ruby Grapefruit (All States Except CA)	To reduce early season small fruit drop of Star Ruby Variety thereby increasing yields.	6.25-9	Make a single dilute application during the bloom period.
NOTE: Results will vary from season to season depending on environmental conditions. Maintain a well-balanced fertilization and watering program.			
Clementine Mandarin	To increase fruit set and yield.	0.25-2	Make one or two applications from 50% petal fall up to 3 weeks after petal fall. Use a dilute spray with sufficient spray volume for adequate coverage of tree canopy.
NOTE: The number of applications depends upon amount of desired fruit set. Generally, more fruit will be set by 2 applications made early in the blooming cycle at the high rate and climatic conditions more favorable to set. Differences in the crop strain will also interact with the above factors to affect the degree of fruit set achieved. Reductions in final fruit size will occur as a result of excessive fruit set.			
Tangerine Hybrids (Orlando, Robinson, Minneola, Sunburst, and others). (All States Except CA).	To increase fruit set and yield. The number of applications depends on desired fruit set.	2-7.5	Make one to two applications during the bloom period. Apply as a dilute spray.
Navel and Valencia Orange (for Florida use only).	To enhance fruit set and yield.	3.25-6.25	Make a single application in Dec-Jan. Apply in 125-175 gallons of water per acre.
Amber-sweet Orange (for Florida use only)	To enhance fruit set and yield.	3.25-6.25	Make a single application in Dec-Jan. Apply in 125-175 gallons of water per acre.
Grapefruit (All States Except CA)	To enhance fruit set and yield.	3.25-6.25	Make a single application in Dec-Jan. Apply in 125-175 gallons of water per acre.

8.2 Citrus: Postharvest Applications

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Lemon (All States Except CA)	To delay fruit senescence and prolong storage life. The delay in senescence will reduce the incidence of infection by sour rot (<i>Geotrichum Candidum</i>).	12.5-25	Add .5 to 1 fluid ounces of product (2 to 4 grams of a.i.) in 10 gallons of storage wax, which has been diluted per wax label instructions.
Yellow lemons and other mature citrus fruit (All States Except CA)	To delay aspects of rind senescence and color changes.	12.5-25	Add .5 to 1 fluid ounces of product (2 to 4 grams of a.i.) in 10 gallons of storage wax, which has been diluted as per wax label instructions.

9.0 SPRAY GUIDELINES FOR FRUIT CROPS

Crop/Cultivar	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Bananas/ Plantains	To stimulate plant growth and to overcome the effects of stress caused by insect, disease or adverse weather. These applications will also improve fruit size and quality and overall yield.	0.25-1.5	Apply using ground equipment once every 30 to 90 days throughout the year. Use sufficient water to achieve good coverage of the foliage. Make more frequent applications (monthly) during the 6 months prior to anticipated weather stress periods.
Bananas/ Plantains	To extend storage life.	0.25-0.5	Mix 0.25 to .5 oz. product/liter of water and spray and spray directly on the banana fingers from 30 days before harvest until harvest. One to two applications are to be used.
Blueberry (All States Except CA) Highbush: Coville, Jersey, Stanley, Earliblue, Weymouth, Walcott, Berkeley, Blueray, Bluecrop, 1316A, Concord, and others.	To improve fruit set.	10-20	Make a single application of 20 oz. product in 40 to 100 gallons of water/ acre. The application shall be made at full bloom (when 75% of the flowers are fully open). OR Make two applications at 10 oz. product/acre in 40 to 100 gallons of water. Make the first application at full bloom, and the second one within 10-14 days of the first one. For Weymouth, application shall be delayed up to two weeks after bloom to increase size of "shot" berries.

Blueberry (All States Except CA) Rabbiteye: Aliceblue, Beckyblue, Bonita, Brightwell, Climax, Delite, Tifblue, Woodward, and others	To improve fruit set.	10-20	Make a single application of 10 to 20 Oz. product/acre in 40 to 100 gallons of water per acre when most of the flowers are elongated but not yet open (bloom stage 5). OR Make two to four applications 10 to 14 days apart starting at bloom Stage 5. Spray 10 to 20 oz. product/acre in 40 to 100 gallons of water per application.
Sweet Cherry	To produce larger, brighter colored, firmer fruit.	4-12	Apply a single spray when the fruit is translucent green to straw colored. Use sufficient water volume to ensure thorough wetting.
NOTE: Color development and harvest date will be slightly delayed.			
Red Tart Cherry (All States Except CA)	To maintain and extend high fruiting capacity of tart cherry trees and reduce the occurrence of "blind" nodes. Treatment will cause bud differentiation, which is apparent the year after application. Therefore, changes in shoot, spur, and flower production will not be evident until two or three years after program initiation. Applications must be applied annually to ensure vegetative development and subsequent yield improvement year after year.	1-4.5	Apply one spray 14 to 28 days after bloom. Optimum timing is defined as that stage when 3 to 5 terminal leaves have fully expanded, or, at least 1 to 3 inches of terminal shoot extension has occurred. Use 4 to 4.5 oz. product/acre, depending on tree age and vigor (See Table below). Apply as a concentrate or dilute spray in sufficient water volume to ensure thorough wetting.
NOTE: Rates are based on expected normal tree vigor at various ages. Adjust rate according to tree vigor. If trees are vigorous, use lowest rates. Lowest rates must also be used on trees that have been heavily pruned or hedged. Use higher rates for trees low in vigor and weak in shoot and spur production. Excessive application rates will increase vegetative growth at the expense of fruit production the following year. Applications will not improve growth of trees under stress conditions, such as nutritional, moisture, or pest. Best results will be obtained when combined with good cultural practices. Apply lower dose in multiple applications as needed or fewer applications as a concentrate spray in sufficient water volume to ensure thorough wetting.			

Application Rates (oz. product/acre) for Tart Cherry Trees by Age

Tree Age (Years)	Rate (oz. product/acre)
6-10	1-1.5
11-15	2-2.5
16-20	2.5-7
20 + years	7-4.5

STONE FRUITS			
Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Stone Fruit Group (All States Except CA)	To increase fruit firmness and improve fruit quality in the season of application.	4-8	Apply as a single spray one to four weeks prior to the beginning of the harvest period. Use sufficient water to achieve complete coverage of fruits and foliage.
NOTE: This application will cause reduction in flower counts the year following the application, particularly if it is made during the months of May through July.			
Italian Prune (All States Except CA)	To reduce internal browning, improve quality, and increase size.	3-12	Make a single application four to five weeks before expected harvest. Apply in sufficient water volume to ensure thorough wetting.
NOTE: Color development and harvest will be slightly delayed. Will reduce bloom the following season.			

10.0 SPRAY GUIDELINES FOR NON-BEARING FRUIT TREES AND OTHER CROPS

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Non-Bearing Stone Fruit (All States Except CA)	To reduce flowering and fruiting in young stone fruit trees to minimize the competitive effect of early fruiting on tree development.	5-20	Make a single application during the period of flower bud initiation for the following year. Consult with the local horticulturist for timings and rates for specific cultivars in your area. Use sufficient water to achieve good coverage of the canopy.
NOTE: Do not spray trees in the first year. Treat in the second season for reduction of flowering in the third season, and again in the third season if flowering reduction and fruiting is desired in the fourth season. Treat only trees that are in good physiological condition. Discontinue treatment the year before desired harvest.			
Strawberry	To increase runner production of mother plants.	3.75-6.25	Make a single application to mother plants 10-30 days after planting. Plants must have 1-6 leaves at spraying. Apply 100 gallons spray/acre to point of run-off.
NOTE: Not for use on fruiting plants. Treatments will not be effective on plantings set out after mid-May. Response varies with cultivar and location. Consult local horticulturist for specific instructions.			
Cranberry (All States except CA)	To reduce or completely eliminate the crop in the year of application.	2.5-12.5	Make a single application at early bloom (2-5% scatter bloom). Use sufficient water to ensure thorough coverage.
NOTE: Applications made later than indicated will result in no effect or result in increased fruit set (opposite effect). Responses will vary with cultivar, age of the bog and location. Consult the local specialist for specific information.			
Pineapple	To shape fruit	30 oz. product/acre	Make 1 to 2 applications per crop cycle of 14 to 18 months

11.0 SPRAY GUIDELINES FOR VEGETABLE CROPS

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Artichoke	To accelerate maturity and shift harvest to an earlier date.	2.5-5	For perennials: Apply 1 to 3 applications at bud initiation stage. For annuals: Apply 1 to 4 applications at 2-week intervals, beginning at the fourth true leaf. Use sufficient water volume to ensure thorough wetting of the entire plant (leaves, stems and buds).
Carrots, Fresh and Processing (All States Except CA)	To delay leaf senescence. Maintaining vigorous foliage will reduce the incidence of infection by <i>Alternaria dauci</i> .	0.25-1.5	Make the first application 4-6 weeks after emergence using commercial ground equipment with spray concentrations of 20-30 ppm. In severe disease situations or cool weather, a second spray 14 days later will be required to achieve the desired amount of foliar recovery. Do not apply more than twice per crop.
NOTE: Concentrated sprays will increase the risk of excessive top growth, particularly with a second application.			
Celery	To increase plant height and yield and to overcome stress due to cold weather conditions or saline soils, and obtain earlier maturity.	.625-2.5	Make a single application one to four weeks prior to harvest. Use 25 to 50 gallons of water per acre by ground application. Use lower concentration if applying 3 to 4 weeks before harvest and higher concentrations within 1 to 2 weeks before harvest.
NOTE: Do not apply earlier than 4 weeks before harvest as bolting will occur.			
Cucumber	To stimulate fruit set during periods of cool temperatures.	0.25-1	Make one application prior to bloom followed by two additional applications at intervals of 10 to 14 days. Up to four applications are required. Use sufficient water volume for thorough coverage of exposed foliage.
NOTE: For maximum benefits, vines must be in good condition, except for reduced rate of growth due to cool temperatures.			
Lettuce for Seed	To obtain uniform bolting and increase seed production.	0.25-1	Apply one to four applications at two-week intervals, beginning at the fourth true leaf. Use sufficient water volume to ensure thorough wetting.
Melon	To stimulate fruit set during periods of cool temperatures.	0.25-1	Make one application prior to bloom followed by two additional applications at intervals of 10 to 14 days on cantaloupes and watermelons.
NOTE: For maximum benefits, vines must be in good condition, except for reduced rate of growth due to cool temperatures.			
Pepper (All States Except CA)	To promote plant growth.	0.25-.75	Apply one to two sprays in 25 to 50 gallons of water per acre at two-week intervals. Begin sprays 2 weeks after transplanting.
NOTE: This use is for acres with a short growing season or when low temperatures slow plant growth.			

Pepper (All States Except CA)	To increase fruit set and promote fruit growth.	0.25-.75	Apply one to two sprays in 25 to 50 gallons of water per acre at weekly intervals during the flowering period.
NOTE: The high rate is for areas and/or varieties with pollination and/or fruit set problems.			
Pepper (All States Except CA)	To increase fruit size.	0.25-.75	Apply in 25 to 50 gallons of water per acre at the beginning of the picking period.
NOTE: Use the highest rate for plants with heavy fruit loads.			
Potato Seed	To stimulate uniform sprouting to aid in maximum production, more uniform development, fewer late maturing plants, and to break dormancy of newly harvested potatoes that have not had a full rest period.	0.05 – 0.10 (oz. product in 100 gallons)	Dip whole or cut seed pieces in a solution containing 0.05 to 0.10 oz. product in 100 gallons of water prior to planting.
NOTE: Under high soil temperatures use the minimum concentration for dormant seed. Do not treat rested seed pieces.			
Rhubarb	To break dormancy on plants receiving insufficient chilling and to increase marketable yield of forced rhubarb.	2.5-5 (oz. product in 10 gallons)	<p>1) When the rest period is not completely broken, make a single application of 2 fluid ounce of a solution containing 5 oz. product in 10 gallons of water to each cleaned crown.</p> <p>2) When the rest period is broken by cold weather, apply 2 fluid ounces (30 ml) of a solution containing 2.5 oz. product in 10 gallons of water to each cleaned crown.</p>
NOTE: Keep forcing house temperatures at 40°F-50°F for 24 hours after application. If house is warmer than 50°F, crowns must be covered with plastic. Temperatures above 50°F will lower yields and cause poor stalk color.			
Spinach (All States Except CA)	To facilitate harvest, increase yield and improve quality of fall and over-winter spinach.	1.5-2.5	<p>Apply in a single spray 10 to 18 days before each anticipated harvest on fall or over-winter spinach, ideally when daytime temperatures are 40°F to 70°F and during early morning hours when dew is present on crop.</p> <p>Make applications in 10 to 50 gallons of water per acre by ground sprayer. When applied to promote growth of second cutting, wait until some regrowth has started before spraying. Maximum benefit is obtained when below normal temperatures predominate following application and growth would be otherwise slowed in untreated spinach.</p>
NOTE: Since the promotion of bolting will occur, do not apply after the mid-winter period or if temperatures are expected to exceed 75°F within several days of application. Do not apply on spring planting.			

12.0 SPRAY GUIDELINES FOR OTHER CROPS

COTTON, CORN, SOYBEANS, HOPS, AND RICE			
Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Cotton, Corn, Soybeans (All States Except CA)	To promote early plant growth and increase seedling vigor.	0.25-1.5	Apply as an in-furrow application to seed or as a foliar application from the cotyledon leaf stage through the 7 leaf/ node stage. Up to three applications are to be made as needed. To mix, fill the treatment tank with half the final tank mix volume. Add the required amount of X-PAND and mix thoroughly while adding water to the desired final volume. Compatibility information regarding tank mixtures of X-PAND with herbicides is not available. Ground application: For low pressure ground sprayers equipped with boom and flat fan nozzles, apply 10 to 15 GPA spray volume. Dispose of the unused mixtures according to the label directions at the end of the day.
NOTE: Use higher rates when temperatures will likely average 75°F or less during the 14 days following the application. Do not apply more than 4 applications per season, as over-dosage will result in excessive growth. Do not apply to plants under drought stress.			
Hops: Seeded and seedless Fuggle hops and similar varieties adapted to the Northwestern US	To increase fruit set and yield	1-1.5	Make a single application in 100-150 gallons of water per acre when vine growth is 5-8 feet in length.
Rice Seed Treatment	For use as a seed treatment of both semi-dwarf and tall rice varieties to promote germination, emergence and final stand densities when planted at greater depths where soil moisture levels are more adequate for germination.	0.125-.5	Use in 4 to 10 oz. water per 100 pounds of rice seed. X-PAND is to be applied to dry seed with standard mist-treating equipment. Best results are obtained using a higher treatment volume (6 to 10 fl. Oz product per 100 pounds of seed) to ensure the seed is completely and uniformly covered with X-PAND. Fill the seed treatment tank with water to one-half the final tank mix volume. Add the required amount of X-PAND mixing thoroughly while adding water and other seed treatment products to the desired final volume.
NOTE: Apply only to rice seed intended for drill seeded or dry broadcast systems. Do not apply rice used in a 24-hour presoak prior to broadcast or to water used for presoak. Do not use more than 2.1 grams a.i. per 100 pounds of seed. DO NOT USE TREATED SEED FOR FOOD, FEED, OR OIL PURPOSES. An approved dye must be added to distinguish treated seed and prevent inadvertent use of food, feed or oil purposes. Seed commercially treated with this product must be labeled in accordance with all applicable requirements of the federal and state seed laws. X-PAND is compatible with most commonly used fungicide seed treatments such as VITAVAX® and DITHANE®, standard dyes and sticker-binding agents. When preparing tank mixes, the user must ensure adequate physical compatibility and mixing characteristics.			

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Rice Post-Emergent Seedling Treatment	For use as a postemergence seedling application on rice grown in the United States to promote more uniform and vigorous growth of rice prior to permanent flood establishment. This will allow earlier (five to ten days) flooding of drill or dry broadcast seeded varieties and is particularly effective on semi-dwarf varieties. Early flooding will reduce additional flushing costs associated with delay in permanent flooding, weed infestations and the number of herbicide applications as well as promote earlier and more uniform grain maturity	0.25-.75	Apply to rice between the 1 to 2 leaf stage and the 4 to 5 leaf stage of growth. Timing and dosage is based on environmental conditions, tank mix combinations with herbicides and method of permanent flood practice in relation to rice leaf stage.
NOTE: X-PAND application will result in a temporary lighter green foliage color due to accelerated growth rates. Do not apply when rice is subject to drought stress conditions. X-PAND may be tank mixed with most commonly used rice herbicides and fungicides. When X-PAND is applied in tank mixes with Arrosolo®, Riverside Propanil® 60 DF, Stam® 80 EDF or WHAM® EZ, plus an adjuvant, the use of a surfactant is not necessary. Do not apply X-PAND with products containing fenoxaprop-p-ethyl as the active ingredient.			
Hybrid Rice: Seed Production (All States Except CA)	Apply X-PAND to facilitate main culm and tiller panicle extension to increase pollination and harvest efficiency.	5-20	Make 1 to 5 applications at regular intervals during the heading period.

13.0 SPRAY GUIDELINES FOR ORNAMENTALS, CUT FLOWERS, TURFGRASS, BEDDING PLANTS, ETC.

The following instructions are based on results with common cultivars. Differences in responsiveness will vary from one cultivar to another or from one set of growing conditions to another or from one cultural management system to another. Therefore, prior to widespread usage, test a small number of plants from each cultivar under a specific set of growing and cultural management conditions to verify desired efficacy.

13.1 Ornamentals

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Azalea (All States Except CA)	To break dormancy on some cultivars (e.g. 'Gloria', 'Prize', and 'Redwing').	0.95	Apply after three to four weeks of chilling.
Azalea (All States Except CA)	As a complete substitution of cold treatment to break follow dormancy.	0.95	Apply four to six sprays at weekly intervals. Plants must be at Stage 5 of floral development (style elongated and open) before first spray is applied.
NOTE: Flowers will not develop properly if applied prior to Stage 5 of floral development. Do not apply after flower buds show color. To ensure uniform flowering, apply to thoroughly cover the plant.			
Azalea (All States Except CA) – Flower Bud Initiation	To inhibit flower bud initiation during vegetative growth.	0.10-0.70	Approximately 2 to 3 weeks after each pinch, apply a single foliar application. After the first application, continue applying on a weekly basis for 1 to 2 weeks.
NOTE: Make a maximum of three applications.			
Calla Lily (All States Except CA)	For increased flowering.	0.48	Prepare a solution and soak rhizome or tuber for 10 minutes prior to planting.
NOTE: Leaf or flower stretching will be observed in some cultivars. If this occurs, reduce rates.			
Camellia (All States Except CA)	To substitute for chilling requirements and increase bloom size.		Mix equal volumes of product and water. After removing the vegetative bud, found immediately adjacent to or below the floral bud, place a single drop of the prepared solution on the vegetative bud scar.
NOTE: Adding a deposition aid (e.g., carboxymethylcellulose) to thicken the solution will reduce run-off.			
Cyclamen (All States Except CA) – Bud Application	To promote uniform flowering.	0.125 Oz. product	Apply a single application of 4ml (0.125 fl. Oz.) of a 10 to 15 ppm a.i. solution directly to the crown when buds are pinhead size in the leaf axils.
Cyclamen (All States Except CA) – Foliar Application	To promote uniform flowering.	0.02	Thoroughly wet the crown by applying a single foliar application directly toward the crown and adjacent leaves when buds are pinhead size in the leaf axils.
NOTE: Both bud and foliar applications have been shown to promote uniform flowering. Late or excessive applications will result in poorly formed flowers or weakened stems.			
Fuchsia (All States Except CA)	To produce tree forms of common fuchsia cultivars by stem elongation.	0.24	Apply a foliar application beginning after the fuchsia plant has reached the desired size and continue for four consecutive weeks. Spray plant to point of run-off.
NOTE: Staking will be required after application. Higher concentrated solutions will cause long, spindly and weak stems.			

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Geranium (All States Except CA) – Cuttings	To increase number and size of flowers.	.001-.005	Apply when inflorescence first begins to show color. Apply spray to the developing inflorescence.
NOTE: Peduncle stretching will be observed if application is made prior to inflorescence showing color or if concentrations in excess of 5 ppm are used.			
Geranium (All States Except CA) – Seedlings	To advance flowering.	.005-0.15	Apply a single application when the first flower bud set is noted. Spray plant to point of run-off. Depending on type of geranium, flowering will be advanced 10 to 21 days.
NOTE: Overuse or incorrect timing will cause long, spindly and weak stems.			
Geranium (All States Except CA) – Tree Forms	To produce tree forms of common geranium cultivars by stem elongation.	0.24	Apply a foliar application for four consecutive weeks spraying plant to point of run-off.
NOTE: Staking will be required after application.			
Hydrangea (All States Except CA)	To substitute for chilling requirements and break flower bud dormancy.	.002-.005	Apply a single foliar application for one to four consecutive weeks beginning at the start of forcing. Thoroughly apply solution to all growing points containing flower buds.
NOTE: Overuse or incorrect timing will cause long, spindly and weak stems.			
Pompom Chrysanthemums (All States Except CA)	For elongating peduncles on pompom chrysanthemums.	0.02-0.046	Apply a single spray four to five weeks after initiation of short day conditions. Apply spray towards the flower buds.
NOTE: Overuse or incorrect timing will cause long, spindly and weak stems.			
Spathiphyllum (All States Except CA)	To induce flowering of Spathiphyllum.	.145-0.24	Apply single full coverage spray approximately nine to twelve weeks prior to sale. Spray plant to point of run-off, thoroughly wetting all growing points.
NOTE: Distorted bloom, increased petiole length and narrow leaves will appear on some cultivars such as 'Petite', 'Starlight', 'Tasson', and 'Mauna Loa'. For other cultivars, prior to application on a commercial basis, evaluate the effects of X-PAND on a small number of plants.			
Aglaonema, Anthurium, Dieffenbachia (Dumb Cane) (All States Except CA)	To accelerate bloom and increase flowering.	0.24-0.48	Apply a single foliar application for one to four consecutive weeks beginning at the start of forcing.
Syngonium (All States Except CA)	To accelerate bloom and increase flowering.	0.48-1.9	Apply a single foliar application for one to four consecutive weeks beginning at the start of forcing. Thoroughly apply solution to all growing points containing flower buds.
NOTE: Applying X-PAND will increase flower yield and decrease time to flowering. To induce bloom, make 1 to 2 applications while plant is in the vegetative phase. For other Araceae cultivars, prior to application on a commercial basis, evaluate the effects of X-PAND on a small number of plants.			

13.2 Cut Flowers

NOTE: Applying X-PAND to ornamental plants grown for cut flowers will aid in promoting longer stems and increased flower yield. Gibberellic Acid is a potent plant growth regulator and overuse will result in undesirable effects. Assess the effects of X-PAND on a small number of plants prior to making large-scale application.

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Aster (All States Except CA) – Monte Carlo type, Novitype and Belgitype	To aid in promoting longer stems and increased flower yield.	.045-.10	Apply in 1 to 3 applications when plants are 2" to 6" tall. Make applications at 2 to 3- week intervals.
Baby's Breath (Gypsophila) (All States Except CA)	To promote plant growth, increase flower yield and uniformity.	.145-.48	Make 3 to 4 applications of solution at 4 weeks of growth (after pinching). Make applications at 2 week intervals.
Bells of Ireland (Moluccella) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply when plants are 4" to 8" tall. Make application at 2 to 3 week intervals.
Bupleurem (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Campanula (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Candy Tuft (Iberis) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Column Stock (Matthiola) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Delphinium including: D.belladonna, D.bellamomum, D.cardonale, D.elatum, D.grandiflorum, D.nudicale, and Delphinium hybrids (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3-week intervals.
Didiscus (Trachyme) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3- week intervals.
Hydrangea (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Larkspur (Consolida ambigua, C. orientalis, Delphinium ajacis) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Lisianthus (Eustoma) Eustoma grandiflora (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Phlox (Phlox paniculata and Drummondii hybrid) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3-week intervals.
Queen Anne's Lace (Ammi) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3-week intervals.
Safflower (Carthamus) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3-week intervals.
Solidaster (Solidago) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Statice (Limonium) (All States Except CA)	To promote early flowering and to increase flower yield.	.40-.48	Apply as a foliar spray when plants are more than 10 inches in diameter (approximately 90 to 110 days after normal seeding time).

NOTE: Do not exceed specific rates. Do not apply repeated sprays. Accelerated flowering is influenced by extended photoperiod, adequate nutrition and reduced night temperature. Treatment with Gibberellins lessens the requirement for the cold requirement and/or the long photoperiod.

Statice (Limonium) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3- week intervals.
Sunflower (Helianthus) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.
Sweet William (Dianthus) (All States Except CA)	To promote plant growth and longer stems.	.045-.10	Apply solution as a foliar spray when plants are 4" to 8" tall. Make applications at 2 to 3 week intervals.

13.3 Bedding Plants , Annual and Perennial Potted Crops, Field Grown Ornamentals and Bulb Crops

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Bedding Plants, Annual and Perennial Potted Crops, Field Grown Ornamentals and Bulb Crops (All States Except CA)	To promote plant growth and/or overcome the effects of excessive use of a gibberellin inhibiting plant growth regulator.	.001-.02	Begin by applying a single foliar application of a 1 ppm a.i. solution unless experience dictates a higher rate is appropriate. If desired results are not achieved, a reapplication or increased rate will be necessary. Do not use more than 25 ppm a.i.

NOTE: Gibberellic Acid is a potent plant growth regulator and overuse will result in undesirable effects including stem elongation. Assess the effect of X-PAND on a small number of plants prior to making large scale applications.

13.4 Turfgrass

Crop/Variety	Objective/Benefit	Rate (oz. product/acre)	Application Timing/Instructions
Bermudagrass Tifdwarf, Tifgreen, and other cultivars (All States Except CA)	To initiate or maintain growth and prevent color change during periods of cold stress and light frosts.	2.5-6.25 oz. product/acre	Apply 2.5 oz. product per acre weekly or 6.25 oz. product per acre biweekly in 25 to 100 gallons of water per acre.
NOTE: Application of X-PAND to Bermudagrass grown in golf courses, parks and turf farms has been shown to initiate or maintain growth and prevent color change during periods of cold stress.			
Do not exceed specific rates. Maintain adequate moisture and proper fertilization programs as indicated for the local area. Discontinue treatments if thinning is observed. Do not apply the high rate more frequently than every two weeks. More frequently mowing will be necessary. Do not use on dormant turf.			
Bermudagrass Tifdwarf, Tifgreen (All States Except CA)	To maintain or enhance regrowth of golf course Bermudagrass during summer months.	.25 oz. product/acre	Apply weekly in 25 to 100 gallons of water per acre.
NOTE: Application of X-PAND to Bermudagrass grown in golf courses, parks and turf farms has been shown to initiate or maintain growth and prevent color change during periods of cold stress.			
Do not exceed specific rates. Maintain adequate moisture and proper fertilization programs as indicated for the local area. Discontinue treatments if thinning is observed. Do not apply the high rate more frequently than every two weeks. More frequently mowing will be necessary. Do not use on dormant turf.			

14.0 CONVERSION TABLE (G/FL. OZ)

X-PAND contains approximately 4 grams of active ingredient per fluid ounce of product.

Grams of active ingredient	Fluid ounces of X-PAND
0.5	0.125 oz.
1.0	0.25 oz.
2.0	0.5 oz.
4.0	1 oz.
5.0	1.25 oz.
8.0	2 oz.
10.0	2.5 oz.
12.0	3 oz.
16.0	4 oz.
20.0	5 oz.
25.0	6.25 oz.
32.0	8 oz.
40.0	10 oz.
48.0	12 oz.
50.0	12.5 oz.

15.0 CONVERSION TABLE (PPM)

Volume of X-PAND to use in water spray to provide the desired parts per million (ppm) spray.

Gibberellic Acid (GA3) ppm (parts per million)	X-PAND milliliters (mL) per liter of spray	X-PAND milliliter (mL) per gallon of spray	X-PAND fl. Oz. per gallon of spray
1	0.01	0.03	0.001
5	0.04	0.15	0.005
10	0.08	0.28	0.01
25	0.19	0.70	0.02
50	0.38	1.40	0.045
100	0.75	2.80	0.10
250	1.85	7.00	0.24
500	3.70	14.0	0.48
750	5.55	21.0	0.70
1000	7.40	25.3	0.95

16.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Keep containers tightly closed when not in use. Store away from any heat source.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Use label language appropriate for container size and type.

Nonrefillable Containers: Do not reuse or refill this container. Clean container promptly after emptying.

Nonrefillable containers equal to or less than 5 gallons: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable containers greater than 5 gallons: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

17.0 WARRANTY

To the fullest extent permitted by law, neither the manufacturers nor the seller make any warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use of this material when such use is contrary to label instructions. Read and follow the label directions carefully.