

EPIN™

A Magic Growth Stimulator - from inventive Russian scientists!



1 vial contains
1 mg of EPIN
concentrate

A Foreword from TopTropicals

Our first experience with EPIN occurred when our friend gave us couple vials of it to treat stressed plants that we received from delayed shipment. We didn't believe in magic and were quite surprised when after a single treatment they all survived, although we gave up right away. After keeping the plants for a week in shade, drooping leaves went juicy again and we got recovered and developing plants. EPIN really saved them. Our customers from Russia where we export our tropical plants also expressed their trust in EPIN, so as the next step we tried to use it on plants before putting them in boxes for shipment to Russia. Surprisingly, the whole shipment arrived greener and healthier than before in spite of that the trip was 8 days long. In the previous shipments we had a relatively high percentage of plant loss, and with this one they were 100% alive and healthy! Since then we use EPIN on regular basis on weak or stressed plants, for rooting cuttings and germination seeds, for treatments before long shipments and of course on all plants that arrive to us bare-rooted. We couldn't find any source of this wonderful plant hormone in the US and had to import it from Russia where it was manufactured and widely used. Our experience encouraged us to get this Magic Hormone into the US market so other plant enthusiasts can enjoy the wonderful results. Now EPIN is available from our Online Store!



Re-sealable cap

What is EPIN?

EPIN™ is a natural plant growth hormone and the first representative of a new generation of agricultural chemicals. EPIN has a broad spectrum of stimulative and protective activities. Synthetically prepared epibrassinolide, active ingredient of EPIN, belongs to a class of brassinosteroids and is identical in all respects to naturally occurring plant hormone.

EPIN will help your plants:

- recover from stress
- increase growth rate greatly
- get profuse flowering and fruiting
- improve disease resistance
- increase plant hardiness

And yet it will:

- promote seed germination
- root cuttings easily
- ...and so much more!

Great for indoor plants!

EPIN is no way a "magic-cure-all" medicine where one can't find its active ingredient. The hormone is well-known and used in different countries along with other hormones for promote growth, fruiting, blooming, rooting, etc.

EPIN won't bring a dead plant back to live and it should be used only when needed: for stressed plants, for plants which need extra boost. Don't use it all the time. It's as bad as using steroids for building your muscles.

EPIN is not a fertilizer and won't replace it. You have to apply fertilizer and micro-element solution to keep your plants healthy.

EPIN is not a substitution for a proper plant care. It won't help if you keep a plant dry, dark and starving.

EPIN facts and actions

Facts

- active ingredient: brassinosteroid (24-epibrassinolide)
- acts in extremely low doses, which are comparable with the natural content of epibrassinolide in plant
- ecologically safe, nontoxic in relation to human, pets, useful insects and fish
- the compatibility of EPIN with other agricultural chemicals allows it to us along with other treatments

Enhancer

- enhances the immunity of the plant enhances plant resistance to pesticide injury and diseases
- enhances plant resistance to stresses and unfavorable conditions such as drought, cold, low light, low humidity, high salinity, chill, insufficient nutrients
- increases quality of fruit, promotes fruit setting and increases the fruit weight
- enhances flowering profusion improves tuber formation

Stimulator

- stimulates physiological processes in plants
- promotes the growth of plant (all parts)
- shortens the period for maturity
- stimulates root development in cuttings
- promotes seed germination, increases germination rate
- promotes new roots and healing of damaged roots on bare-rooted plants

Works magically

- effective post-transportation treatment to help plants to recover from shipping stress
- diminishes disease injury
- induces hermaphrodite flower and female flower
- makes leaves look healthy and shiny
- makes flowers bigger
- can inhibit aging
- can break dormancy
- gives more chances to bring a plant back to life within hours/days

History of use

The first brassinosteroid was isolated in the end 1970 in the US from bee-collected pollen of Yellow Turnip (*Brassica napus*). Today many brassinosteroids have been isolated from different plants and more then twenty-years or research proved importance of these naturally-ocurred hormones for plant growth and development. Unfortunately, pollen contains very small amount of brassinosteroids, almost 100 lb of pollen is required to produce 5 mg of the hormone. That's why a chemical synthesis is the only way to produce it. EPIN has been officially patented in Russia and Belarus in 1992, and it is used for treatment of different agricultural crops (cereals, legumes, potato and vegetables, sugar beet, flax, cotton), ornamentals, and for application in horticulture. It is now widely used by gardeners and plant collectors in European countries to stimulate growth rate, enhance blooming, help plants recover from transportation and re-potting stress, and for successful propagation.

Testimonials. EPIN is very popular among our customers in Russia who have been buying tropical plants from TopTropicals for last years. According to their feedback, it is very effective treatment for plants after shipping, while it takes 6-8 days for our plants to get to Russia! EPIN



improves plant development in non-tropical environment, and is a great help for a zone-pushing plant collector who grows tropicals on a window sill or in a temperate greenhouse.

Formulation and Application

Formulation is stable in neutral and mild acidic conditions. Dilute EPIN concentrate in DISTILLED water only, according to the table below. Do not use tap water, drinking or natural spring water. Distilled water can be purchased in any Pharmacy, Grocery or Department store for about \$0.99 per gallon. Try to avoid mixing it with any other chemicals and fertilizer. You can use it for soaking (seeds, bulbs, cuttings) or foliar spray. See table below for possible applications. Better results are obtained when young plants are treated. Plants should be evenly sprayed in clear windless day, seeds should be soaked during 4-24 hours. Usual types of sprayers can be used, but if they were used previously with others chemicals, they must be washed with fresh water

- prepare solution right before use
- avoid mixing it with pesticides
- do not spray if rain is expected. Re-spray if it rains within 12 hours
- all solution should be used the same day. Do not keep solution.
- store in dry and cool place. Refrigeration is ok, but don't freeze.
- expiration: 3 years from manufacturing date.
- solution shouldn't be stored, prepare as much as you need
- store away from food and out of reach of children

Dosage

| Plant type | When to apply | Treatment | Concentration |
|---------------------------------------|---|--|--|
| Herbaceous plants | beginning of flowering | foliar spray | 1 vial (1 mg) per 1 gal of water |
| Blooming woody shrubs, trees, vines | at budding | foliar spray | 1 vial (1 mg) per 1 gal of water |
| Fruit trees | at budding and after flowering | foliar spray every 20 days | 1 vial (1 mg) per 1 gal of water |
| Caudex forming plants and bonsai | once a month to promote caudex forming and stimulating new growth after pruning | foliar spray | 1 vial (1 mg) per 1 gal of water |
| Bulbs and tubers | before planting | soaking for 24 hours | 1/2 vial (1/2 mg) per 1 quart of water |
| Vegetables | beginning of flowering or tuber forming | foliar spray every 20 days | 1/2 vial (1/2 mg) per 1 quart of water |
| Seeds (smaller size) | before sowing | soaking for 4-8 hours | 1-2 drops per 3 oz of water |
| Seeds (bigger size, hard shell) | before sowing | soaking for 8-24 hours | 4-6 drops per 3 oz of water |
| Seedlings | once a week to promote rapid growth and root development | foliar spray | 1/2 vial (1/2 mg) per 1 quart of water |
| Cuttings | before planting | soaking for 12 hours | 1/2 vial (1/2 mg) per 1 quart of water |
| Bare-rooted plants | before planting | soaking for 15-30 min and foliar spray after potting | 1 vial (1 mg) per 1 gal of water |
| Pre-treatment before stressful period | before cool/drought period or transportation | 1-2 days prior | 1 vial (1 mg) per 1 gal of water |
| Stressed plants | after transportation or re-potting | every 7-10 days until recovered | 1 vial (1 mg) per 1 gal of water |

Chemical and Physical Properties of Active Ingredient

Chemical mechanism: EPIN's active ingredient, Epibrassinolide, can increase synthesis of IAA, ABA and ethylene, promote individual cell expansion, and thus enhance plant growth. This is realized via complex sequence of biochemical shifts such as activation or suppression of key enzymatic reactions, promotion of protein synthesis, activation of photosynthesis, etc. Stable in neutral and mild acidic solutions, unstable in alkaline solutions.

Chemical name: (22R,23R,24R)-2a,3a,22,23-tetrahydroxy-24-methyl-B-homo-7-oxa-5a-cholestan-6-one.

Molecular formula: C₂₈H₄₈O₆, Molecular weight: 480, No characteristic odor

Toxicology and Ecological safety

EPIN has the natural bioregulator as an active ingredient. It traditionally participates in food chains of people and mammals and its metabolic pathway is evolutionary habitual for them. This fact is an important prerequisite for considering EPIN as ecologically safe nontoxic chemical, that has been supported by the toxicological studies. Moreover, stimulation by EPIN of natural resources of a plant allows to diminish the employment of other plant protective agents, some of which are conflicting with respect to the environment. EPIN can be considered as representative of a new generation of agricultural chemicals, which have no interference with the environment, act in natural doses and in a natural way.