

Q. Why should I use a liquid instead of a powder?

A. There is ample evidence to indicate the superiority of the quick dip over the powders. In current research, a quick dip was as good as or better than the powder at promoting root growth. Reasons for the performance difference between the powder and liquid may be the uniformity of coverage and the more rapid absorption of IBA that the liquid allows. When the same proportion of IBA is used, it is less effective in the powder than in the liquid solution.(2)

Q. How do I use Dip 'N Grow for the first time?

A. Each bottle of Dip 'N Grow comes with directions for use on the labeling. Our 2-ounce size Dip 'N Grow Rooting Kits also come with a comprehensive directional insert. Here is a summary of the proper use and a recommendation for users who are switching from the powder to the liquid. a) Always read the entire directions for use and the precautionary statements on the package or bottle of Dip 'N Grow prior to use. Dip 'N Grow is recommended for use on most nursery stock grown from cuttings including woody ornamentals, ground covers, deciduous hardwoods, root stock and perennials.

- . For hardwood cuttings, mix 1 part Dip 'N Grow to 5 parts water.
 - . For medium hardwood cuttings, mix 1 part Dip 'N Grow to 10 parts water.
 - . For softwood cuttings and succulents, mix 1 part Dip 'N Grow to 20 parts water.
 - . Simply dip the basal end of cutting (bottom of the stem), individually or in bunches into the diluted Dip 'N Grow for 3-5 seconds. Following dipping, place cuttings into planting medium. Keep cuttings moist and warm.
- b) Since cutting propagation depends on many different factors (such as climate, contaminants, condition of cutting), it is recommended to do a trial application on a few cuttings.
- . All plants respond to a range of active ingredients, so a trial application may consist of the several cuttings of the same species with different dilution ratios to see which one is the most effective for that particular plant. If in doubt of the best concentration, less is better than more. Try a greater dilution with water.
 - . Because of the many factors involved, liability of any claim arising out of the use of the product is limited to replacement of the product or refund of the purchase price.

Q. What is the correct dilution of Dip 'N Grow?

A. Every species/cultivar responds to hormone treatment in different ways. Ideally, every

plant has an optimum hormone concentration range.(2)

Because of the numerous species of plants, it would be impossible to determine a rooting hormone concentration curve for all plants. Some general guidelines for ratios are 1 in 5 for hard woods, 1 in 10 for medium woods and 1 in 20 for softwoods and succulents. The point is to find a good median range for the largest amount of plants being propagated, usually the 1 in 10 range.(2) Too strong of a concentration may burn cuttings. If in doubt, a more diluent solution is best.

For a reference chart of parts-per-million see [Parts-Per-Million Sheet](#) in the technical reference section.

Q. How did the five-second dip become standard?

A. Research has proven that a 5-second dip is equally effective as a 160-second dip in promoting root growth. Longer dips, such as a 320-second dip, actually decreased effectiveness.(2)

Q. How do I classify the type of plant that I am propagating?

A. There are three categories of cuttings: softwood or succulent, semi-hardwood (greenwood) and hardwood. There is some cross over in the categories, but usually they are easy to identify.

a) Softwood/Succulents

The emerging growth of most plants are classified as softwood. Things to look for are cuttings that can be easily bruised with a nail, cuttings that can be easily broken and cuttings that wilt rapidly. To avoid wilting, softwood or succulent cuttings should be kept cool and moist. Very softwood cuttings may rot.(2)

b) Semi-hardwood May be applied to broadleaf evergreens when the wood is firm and leaves have matured.(2)

c) Hardwood Deciduous plants after they have lost their leaves in fall, needle evergreens and broadleaf evergreens. Cuttings for needle evergreens are usually rooted under greenhouse conditions.(2)

Q. What are the other key factors which may effect whether cuttings root?

a) Air Temperature

When temperature rises, plant metabolism increases. Photosynthesis and respiration are

temperature sensitive. As temperature rises, the rate of respiration tends to increase faster than photosynthesis, which may result in cuttings losing weight and possibly even dying. Rooting will be slow or success will be limited if temperatures are too low because the cuttings will not be metabolizing at a sufficiently rapid rate for optimum rooting. The system for controlling water loss by the cuttings can be reduced if enclosed in a plastic tent or greenhouse. With respect to rooting cuttings, the best procedure is to use the same air temperature that optimizes growth of that species. For most species, this is in the range of 64-90F° during the day and about 10F° lower during the night. Remember optimal air temperature will vary depending on if cuttings are rooted under sun, shade or humidity tent, mist or fog.(3)

b) Root Zone Temperature Within a temperature range, root development increases as temperatures rise. At temperatures above 77F°, root formation was slowed and at 100F° root growth stopped. The concentration of IBA needed to induce root growth decreased as root zone temperature increased. Higher temperatures cannot replace the benefits of IBA but allow the product to work effectively at lower concentrations. Increasing the root zone temperature also increased the occurrence of rotting, but disease outbreaks can be reduced through strict sanitation procedures in the propagation area. Root zone temperature can be controlled thermostatically through recirculating water systems, heating pads, or heating cables.(3)

c) Light Levels A common factor acting on cuttings is light stress, which can kill unrooted cuttings. The cuttings are stressed because of being cut from the plant and may remain so until they form roots. A way which may reduce stress is shading. Shading at around 50% is very common among propagators, but remember the need for shade can be different for different plants and timing of cuttings. Research suggests using lower light levels until root growth forms and then increasing the light to stimulate the new roots. It is best to balance out enough light to encourage photosynthesis, and growing environment that minimizes stress. The best way to decrease stress is with 50% saran shade cloth. Considerable evidence exists showing that direct light inhibits root emergence. So keep cuttings cool on top and warm below.(3)

d) Photoperiod The length of day/night has long been known to influence plant growth. Many plants show bud break and shoot growth with longer photoperiods. Semi-hardwood or hardwood stage of growth are often more difficult to root. Longer photoperiods show an antagonism between flowering and rooting, so avoid rooting cuttings under photoperiods that promote flowering or dormancy. An increased growth improves the overwinter survival of cuttings after initial rooting takes place.(3)

e) Planting mediums Most plants do well in a mixture of 2 parts coarse perlite to 1 part sphagnum peat. Generally there is not a benefit to adding a fertilizer into the rooting medium until the roots have formed. A well drained growing mix is essential to avoid root rot of many cuttings.(2)

Q. Where can I find the information I need?

A. Here are two excellent resources for propagating.

a) The Reference Manual of Woody Plant Propagation

For a complete review of this book and ordering information for the [Reference Manual](#). Please click here.

b) International Plant Propagation Society: Combined Proceedings.

For more information contact: The International Plant Propagators' Society, Inc. Washington Park Arboretum, XD-10 University of Washington Seattle, WA 98195, U.S.A.

Q. What is the current status of Dip'N Grow with the EPA?

a) IBA Reregistration **Dip'N Grow** is currently registered with the Federal EPA and has complied with all EPA regulations for the continued use of IBA in the product. Also, **Dip'N Grow** is registered in all fifty states, including California.

b) WPS Beginning in January 1994, new labeling appeared on **Dip'N Grow** that includes the new WPS (Worker Protection Standard) requirements for commercial usage. A copy of this standard as printed in 40 CFR §170 is available from Dip'N Grow, Inc. Please contact our sales staff for more information.

Q. What is the registration status of IBA (Indole-3-butyric acid)?

A. Re-registration for indolebutyric acid (IBA) occurred in 1992. It was by intense lobbying of the nursery industry that IBA was finally kept on the market in commercial products. Certain companies decided against re-registering and chose among two options. Some makers opted out of the root stimulator business; others reformulated their product to exclude IBA and only use NAA, which has limited root stimulating ability. If you are looking for IBA in particular, it is advisable to read the label for the active ingredients to make sure the root stimulator you chose contains IBA. Another important reason to read the label, is to look for the EPA Registration Number. This number should be located somewhere on the packaging, and if it is not, the product may be in violation of EPA

regulations.(1)

Q. What applications can Dip'N Grow be used for?

A. **Dip'N Grow** should be used in compliance with its labeling.

a) Ornamental Trees **Dip'N Grow** is safe to use on any ornamental trees. The active ingredient in **Dip'N Grow**, IBA, is considered a biochemical pesticide by 40 CFR §180 of the EPA. This category means that it has a nontoxic mode of action because it is used in low volumes, is target specific (only used on the tip of the cutting) and duplicates a naturally occurring process in plants.

b) Soak/Drench Although **Dip'N Grow** contains the same active ingredients as some drench products, it is manufactured to produce root growth on cuttings.

c) Fungicide Because of certain preservatives, **Dip'N Grow** is self-sanitizing so cross contamination problems are eliminated. Some growers have used extra precautions and have added a fungicide such as Captan® to the solution before dipping their cuttings.

Q. What is the shelf life of Dip'N Grow?

A. If stored in its original container, **Dip 'N Grow** is best used within 3 years of manufacture. Limiting exposure to sunlight and heat will help prolong the shelf life. **Dip'N Grow** has a tendency to darken over time without losing its effectiveness. Once diluted with water, **Dip 'N Grow** should be used within a 10-12 hour period. Two things need to be done to make sure there is no contamination of the concentrate. One: never return the mixture to the concentrate. Two: never dip the cuttings in the original concentrate bottle.

Q. What are the shipping regulations for Dip'N Grow?

- A. Dip'N grow can be shipped two ways. First you need to be a trained hazmat shipper or take the product to a parcel carrier such as UPS, FedX or other Certified small parcel carrier.
Dip'N Grow is a Class 3, Flammable liquid, UN1987, PG II Hazard.

according to the CFR 49 regulations you may ship Dip'N Grow in individual containers in amounts up to 1 Ltr. (our 2oz. or 16oz. bottles) Under the Consumer Commodity exception, with orientation arrows and a O-RMD Label you may ship up to 20 lbs. in a fiberboard box with a box certificate ECT rating of 32 lbs/in. and up to 70lbs with a box certified at a ECT of 44 lbs/in.

The second way is to ship the gallon size in UN certified hazmat packaging With the suitable Labels and documentation required for a class 3, Hazardous substance.

This is exciting as it means mail order catalogues can now offer **Dip 'N Grow** nationally.

Note: You may find all current regulation changes in the Code of Federal regulations (CFR 49). For more information on shipping call your Parcel carriers hazmat representative.

References

- (1) Dirr, Michael. "The Latest On the Status of IBA and Other Root-Promoting Chemicals." Nursery Manager, May 1994. Fort Worth, TX: Branch-Smith Publishing.
- (2) Dirr, Michael and Heuser, Charles. The Reference Manual Of Woody Plant Propagation. Athens, GA: Varsity Press, 1987.
- (3) Geneve, Robert L. Maynard, Brian K. Preece, John E. Combined Proceedings International Plant Propagator's Society. Vol. 43, Seattle, WA: International Plant propagator's Society, Inc., 1993.

Dip'N Grow Dirt, a periodic compilation of **Data** (propagation type), **Information**, **Registration** update and **Technical** know-how -in other words, "**DIRT**". If you would like to contribute with comments, questions or suggestions- Please call toll free 1-866-DIPNGROW (1-866-347-6476) or 503-445-0100 · Fax 503-445-0101 or e-mail sales@dipngrow.com.