HERE ARE SOME ANSWERS TO OUR CUSTOMERS' MOST OFTEN ASKED QUESTIONS ABOUT Calcium-25®

See also "Table of Contents" pages (2015)

1. What is Calcium-25?

Calcium-25 is a ***unique*** crop yield-enhancing supplement composed of naturally-occurring ingredients: calcium and certain amounts of plant waxes that occur on the leaf surface. The combination, when applied to the leaf surface of growing plants in water solution under the right conditions, is absorbed into the leaf as a *carefully balanced* mixture that can be *recognized* by the leaf surface as being *all-natural components*. As a result, the mixture is absorbed into the plant and translocated. This causes a rapid increase in plant growth at an early stage of plant development. The **stimulating** effect carries over to a final increase in crop yield. There are five ***Calcium-25*** products: ***Calcium-25 for Field Corn, Calcium-25 for Soybeans, Sorghum, Alfalfa, Pasture & Small Grains, Calcium-25 for Wheat & Rice, Calcium-25 for Vegetables & Ornamentals*** (also cotton, peanuts, tobacco, berries and grapes), and ***Calcium-25 for Apples & Fruit Trees.*** First made for conventional farms, ***Calcium-25*** is 100% organic and **OMRI listed**!

2. Why is there NO substitute for Calcium-25 by other products?

Calcium-25 does a lot more than just supply calcium -- it does it efficiently by using a ***unique*** absorption-translocation system. Other products require up to a ton or more of product per acre in the soil. ***Calcium-25*** is effective using amounts as low as **less than one-half pound per acre!** That's just the first way it's different! The second difference is in the way ***Calcium-25*** is used, and the third, and most important way, is **how *Calcium-25* will increase your profits!!**

3. How is Calcium-25 used?

Calcium-25 is a granular concentrate, It's simply dissolved in the correct quantity with water ***only*** just before foliar application to crops at the recommended ***stage*** of plant development, *and* within the recommended ***AIR temperature*** range for the crop being treated. Water (and soil) **pH** *make no difference*. Any conventional spray equipment may be used which can apply a fine spray to the leaves at a rate to keep droplets from completely evaporating for about 10 minutes or so (most plants). **See instructions** *for each product* before application.

4. How will Calcium-25 increase my profits?

Calcium-25, when applied as directed, makes a stronger, healthier plant at an early stage of development, ***less likely to be affected by disease or drought***, and which will grow to a stronger adult plant with more marketable final product yield. This can average as high as ***20-***

50%+ overall increases in yield and can increase crop quality and storage for fruit, vegetables, berries, and grapes! In some cases this increase *may be far more than 50%,* as in the case of vegetables. ***Higher yields mean higher profits!*** And ***Calcium-25*** has been found to stimulate **allelopathy** – the ability of *plants* to *control* their environment, such as *weeds* – naturally!!

5. Can Calcium-25 be used on Organic certified acreage?

YES!! Calcium-25 has been approved for use on organic crops since 1990 by groups such as **OMRI**., C.C.O.F., O.F.P.A.N.A., N.O.F.A., O.E.F.F.A., M.O.F.G.A., N.O.P, and others! You can use it without any problem on your certified organic and USDA ORGANIC crops!

6. Why do I need so little Calcium-25 per acre?

Calcium-25 is a concentration-dependent product. For *most* crops, **4 lbs**. of ***Calcium-25*** makes **400 gallons** of solution. For example, a ***4-pound package is a 400 gallon package***. And it *MUST* be diluted this way to work. Other products use different dilutions, such as ***Calcium-25 for Wheat & Rice*** (4 lbs./250 gals.)**,** or ***Calcium-25 for Field Corn*** (1/2 lb./200 gals). Your coverage will vary with the way you apply the product, but ALWAYS dilute the product with the CORRECT AMOUNT OF WATER**!! More **efficient calcium uptake** means you need less! **Remember - it's shipped as a granular concentrate!** (NOTE: all gallons are *U.S. gallons*).

Why choose *Calcium-25* over other products?

Pros & Cons	*Calcium-25*	Other Products
Helps Ca, other deficiencies	**YES**	YES
100% organic approved	**YES**	some
Water soluble	**YES**	few
Use <1/2 lb. per acre	**YES**	NO
Rapidly increases plant growth	**YES**	NO
Increase protein/sugar (BRIX)	**YES**	few
Increase yields	**YES**	some
Improve yields 20-50% or more	**YES**	NO
Another chelate?	**NO**	some
Needs additives	**NO**	some
pH of soil important	**NO**	YES
pH of water in spray important**	**NO**	some
Works well with Ca-rich soils	**YES**	NO
Works well, Ca-deficient soils	**YES**	most
Toxicity	**NO**	some
Approved, Organic	**YES**	few
Storage life	**>33 yrs.**	varies
COST	**LOW**	most HIGH
SHIPPING COST	**LOW**	HIGH

**** USE ONLY CLEAN, DRINKABLE WATER !!**

7. What does "concentration-dependent" mean?

"Concentration-dependent", in this case, means how much ***Calcium-25*** is mixed with water to work -- its concentraion. Plant surfaces move when the plant leaf is growing. The leaf is getting bigger, right? The surface wax compounds, a very complex mixture of organic compounds, are an essential part of the growth process. The more important they are, the less *concentrated* they have to be in the plant leaf surface. ***Calcium-25*** uses the potent waxy substances present on, and within, the leaf surface. By *binding* calcium to these compounds, the plant will absorb the wax component as if it belonged in the leaf. The *wax* components, by having calcium bound to them, cause *both* to be absorbed into the "fluid" leaf surface causing a *greater leaf (and plant) growth rate*. This is illustrated in the next pages. Since the special wax components are at certain critical amounts in water on the leaf surface, the concentration of the wax components in the ***Calcium-25*** solution MUST be controlled by diluting the product with the CORRECT amount of water. ALL THIS MEANS THAT THE CONCENTRATION OF CALCIUM AND THE ORGANIC WAXES *MUST* BE SO THAT THE PLANT LEAF SURFACE WILL RECOGNIZE THEM SO THEY CAN BE ABSORBED!

8. I can spray soybeans easily at 20 gallons per acre. Does this mean I should dilute Calcium-25 at a rate of 4 lbs. to 200 gallons with water and spray 10 acres?

NO!! ***Calcium-25*** is a *concentration-dependent* product, therefore, regardless of application rate, you must dilute each 4-lb. amount with 400 gallons of water (or other dilution for wheat, rice, and corn). *If conditions allow, and 20 gallons of solution or even less will wet the leaves with droplets for about 10 minutes so you can use the 400 gallons on* ***20 acres***. This also cuts the ***Calcium-25*** cost *in half.* ***See the next pages!***

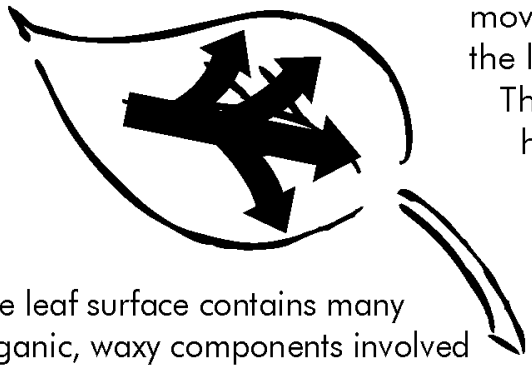
9. How do I dilute Calcium-25 to fit my sprayer if it doesn't hold 400 gallons? How much do I use?

It's easy to use ***Calcium-25*** with any size sprayer!! The following are some examples of questions we get from people with different equipment and uses:

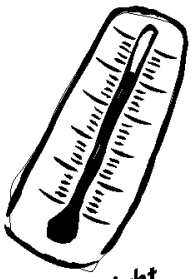
Example 1. Q: I only have a 300-gallon tank on my sprayer. Your ***Calcium-25*** container says to dissolve the contents in 400 gallons of water. What should I do to use my equipment to spray soybeans?

A: Each 4-lb. container of ***Calcium-25*** must be diluted to 400 gallons - that's *one lb. per 100 gallons*. Simply use 3 lbs. in your sprayer. A *short-cut* is to use a measuring cup to measure *16 oz. by volume in each 100 U.S. gallons of water*, and stir thoroughly until dissolved just before use.

Calcium-25?? What is it, and what does it do??

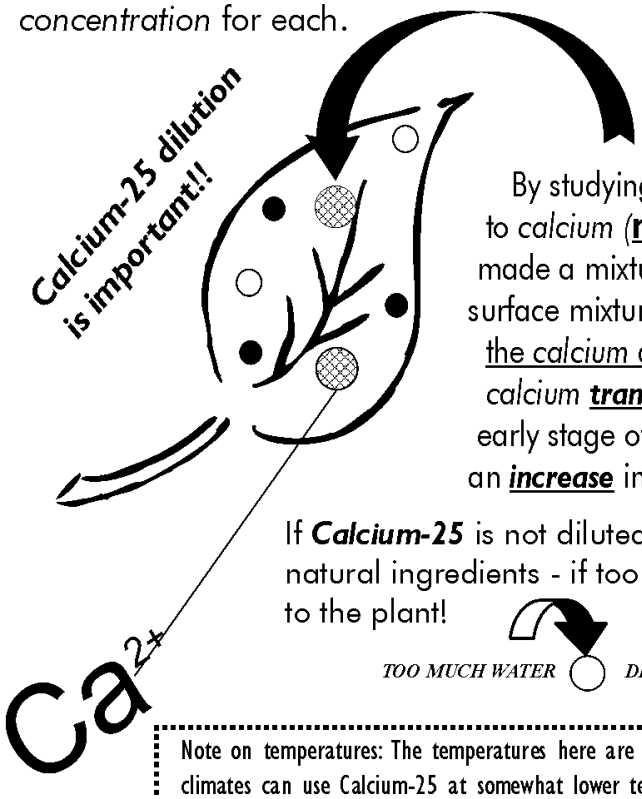


When plants are growing, the leaf surface is moving - expanding. At higher *temperatures*, the leaf surface is more and more "fluid". This is an important factor in knowing how ***Calcium-25*** is absorbed and works, since the faster the waxy leaf surface is moving while the plant is growing, the faster ***Calcium-25*** will be absorbed.



The leaf surface contains many organic, waxy components involved in both plant protection and the growth process. Substances absorbed, through different mechanisms, by the leaf surface can be translocated throughout the plant. The components of these complex molecules vary in different plants. ***Calcium-25*** contains the natural waxes already in the leaf surfaces of a large variety of plants...and at the correct *concentration* for each.

Spraying at the right temperature is important!
(see notes below)



These dots represent the *concentrations* of natural wax components on the leaf surfaces of plants. As the plant grows, and the surface is moving, these remain about the same.

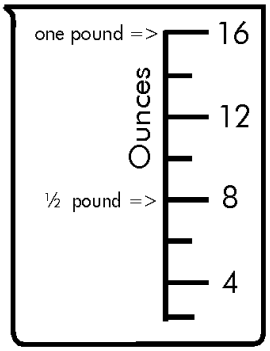
By studying these compounds, and attaching them to *calcium* (**not** by chelating them), Bio-Gard has made a mixture that plants "see" as their own leaf surface mixture, and this is rapidly absorbed - but with the *calcium* attached. The result? **Rapid plant growth**, *calcium* ***translocation***, and increased ***cell division*** at an early stage of development. This, in turn, carries over to an ***increase*** in your ***crop yields***, **quality,** and ***profits!!***

If ***Calcium-25*** is not diluted correctly, the plant *won't* recognize its natural ingredients - if too "strong" or too "weak" it won't "*taste*" good to the plant!

Note on temperatures: The temperatures here are generally those for the U.S. central Midwest. Northern climates can use Calcium-25 at somewhat lower temperatures, while more southern climates should consider somewhat higher ones for best results due to differences in varieties designed to grow well at different latitudes.

What if I have only a 200 gallon tank (or other size)? How do I measure ***Calcium-25*** from the container so I can use it in my sprayer? How can I mix it for use for the garden, greenhouse, golf courses, or landscaping??

Easy!! Just use the following ways to measure out ***Calcium-25*** to meet your needs!! Remember to keep the unused portion in the original container tightly closed for future use! Never mix anything with the ***Calcium-25*** solution!



Measuring cup... from the kitchen, shop, or a cup or pint container

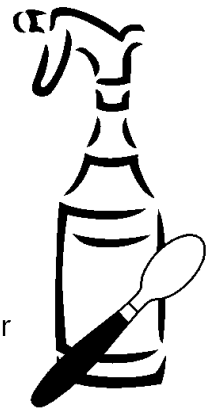
You can use a measuring cup to measure the right amount of ***Calcium-25*** for your individual tank. *A 16-oz. measuring cup (or one-pint container) holds 16 oz. of **Calcium-25** by weight*. If your crop calls for 4 lbs. per 400 gallons, and you have a 200 gallon tank, fill the cup to 16 oz. for **each** 100 gallons of water (only) - or 2x16 oz. amounts for 200 gallons (no additives).

For crops that call for 4 lbs./250 gallons, such as wheat, spelt, triticale, and peas, 16 oz. of ***Calcium-25*** makes 67.5 gallons when diluted (or two 16-oz. measures for 125 gallons, etc.).

For corn, a half-lb. container must be diluted to 200 gallons, and 100 gallons can be made up by measuring 4 oz. in the measuring cup. **All these are U.S. gallons! For Imperial gallons, you must multiply by 0.8** (100 U.S. gal. = 80 Imp.)

Garden sprayer

For spraying on lawns, landscaping plants, large gardens, etc. using a garden sprayer, use the right amount of ***Calcium-25*** and fill the sprayer to the right mark. You can use one oz. for 5 gals., 4 oz. for 20 gals., etc. Mix, hook up your hose, and the sprayer will do the diluting to the correct concentration for you! For hand sprayers, use one *level* teaspoon per gallon. Using a soil fertilizer the *next* day makes *both* work better!



Hand-held sprayer

Any questions? Call us before you spray!!

1-800-673-8502

See other side!! ←

Example 2. Q: I'm a farmer in Canada, and I have a 200 gallon tank, and I want to use ***Calcium-25*** on my *wheat* this year. I see that your 4-lb. container makes 250 gallons only. How do I measure this for use in Canada?

A: First of all, note that the instructions are written for **U.S. gallons**. Next, you must *convert* to imperial gallons for Canada (**multiply by 0.8**). This means that you will need to use 4 lbs. per *200* Imp. gallons. So the entire 4-lb. amount will fill a 200 Imp. gallon tank (250 U.S. gallons), etc.

Example 3. Q: I have your product for vegetables and ornamentals, but I need to know how to use it in *less than* a 400 gallon sprayer in my greenhouse. How do I break the amount down into smaller amounts?

A: This is a common question with a simple answer! You can simply use about *one ounce* for a *5-gallon* sprayer, which can be measured out by volume, or you can use about *one level teaspoon per gallon* for smaller sprayers! Also, in greenhouses, you can use your soil fertilizer a day *after* using ***Calcium-25*** for even better results on vegetables and ornamentals!

10. If I apply Calcium-25 early in the day when humidity is high, can I use a lower application rate?

Sometimes -- *If* the temperature is within the range specified in the instructions for the ***Calcium-25*** product you are using. This information is included with each package. For example with soybeans, if the temperature in the early morning is *lower* than 77 degrees, you *must* wait until later in the day to spray for best results. The plant leaf surface waxes are not as "fluid" at the lower temperature, and this fluid movement on the surface is necessary for the absorption of ***Calcium-25***. The general rule? *Spraying late in the day is always best*!! See temperature notes!

11. On corn, I find it hard to keep the leaves wet with Calcium-25 for 10 minutes, or even 5 minutes, especially with wind. How does this affect my results?

Field corn, unlike other crops, has leaves that are hard to wet without wetting agents (***never*** *use these agents with any* ***Calcium-25*** *product*). All that has to happen is to have a drop or so of ***Calcium-25*** fall into the "whorl" of the plant where the leaves are emerging *at the correct stage* -- this is all that is necessary for activity.

12. I use a fish emulsion foliar product or seaweed product in my foliar feeding program. Can I mix Calcium-25 with these products?

NO! Mixing these types of products with ***Calcium-25*** products will cause certain amounts of the *free* calcium ion present in the solution, *necessary* for activity, to be complexed (or chelated), or even cause the calcium to precipitate out of solution, so it won't be available for the ***Calcium-25*** to have effect. **But** - Using these products *a day or so* ***after*** using ***Calcium-25*** can make them ***both* work *better*** *for even higher increases in yield, quality, and profit!!!*

13. How long after mixing Calcium-25 with water should application be made to my crop seedlings?

Calcium-25 should be applied **as soon as possible** after mixing, but *sometimes* can remain overnight, ***only*** if necessary, when application can be made under the right conditions early the next day. (Call about your particular situation!)

14. Since Calcium-25 is not effective when sprayed on the soil, can I cut my costs by bandspraying the products on the rows of my crops in the field?

YES!! Bandspraying at a sufficient rate to wet the leaves of crops in rows for 10 minutes or so (*at the correct temperature and stage of plant growth*) is just as effective (and recommended) as broadcast spraying and can cut your costs of ***Calcium-25*** to as little as *one-half or even less!!* This is of even more advantage if you use a cultivator between rows that has simultaneous spraying capabilities. SEE temperature notes!

15. What nozzles should I use when spraying Calcium-25?

In general, any **nozzles** that can apply a fine mist to the leaves of your crop seedlings are ideal. For crops such as **soybeans**, and other crops that can hold larger droplets of the ***Calcium-25*** solution, a nozzle that supplies a medium to coarse spray maybe used. In most cases, use nozzles that apply sufficient spray to keep the leaves *wet for 10 minutes or so*, and that make efficient use of droplets with minimal run-off. This varies with crops! **Corn** – a couple of drops in the whorl are all it needs. Use a finer spray for **wheat, pasture,** and **alfalfa**. See individual instructions for your crops!! This is also available at our web site, **www.Calcium25.com**.

16. Can Calcium-25 be applied by plane or helicopter?

While extensive studies have not been done, many aerial applicators have reported even better results when ***Calcium-25*** is applied using this method of application with some claims of

effectiveness with rates as low as 5 gallons per acre. It is *still* important to remember to dilute ***Calcium-25*** to the *correct concentration!!* And, you **must** also keep leaves wet 10 minutes or so!

17. If conditions are not right in my area due to weather, and I cannot apply Calcium-25 according to instructions, can I store Calcium-25 for use next year?

YES!! ***Calcium-25*** **has an indefinite storage life** as long as the original container is kept *air tight*, regardless of the temperature where it is stored (0 to 100+ degrees F).

18. I sprayed soybeans a week or two ago. Is there any way I can tell if Calcium-25 is working, even if there is no visual difference in the field yet?

YES!! If you pull a few plants from an untreated part of the field and compare them to plants pulled from the ***Calcium-25*** treated group, you will see an *increase* in the number and/or size of nitrogen nodules on the root system. This is a *positive* indicator that an *increase in yield will result.* Remember, however, that the yield of any crop still depends on *weather*. This can also be checked in different ways for corn and other crops.

19. What are the advantages of using Calcium-25 late in the season, or in the fall?

There are **a lot of advantages** when ***Calcium-25*** is used late in the season and even in the fall, especially on crops such as alfalfa and pasture, apples and fruit trees, winter wheat, vegetables, late soybeans, and other crops! Weather conditions may make application impractical, or cause *late planting*. On soybeans, ***Calcium-25*** still increases yields, and you can get even *higher* increases than you could by not spraying! Alfalfa responds when new growth appears after *every* cutting. Pasture and wheat show *improved root growth* over the winter months for healthier, more productive plants the next year. Apples and fruit trees bear fruit with *improved storage*, and can be sprayed almost anytime. If a plant has to survive the winter, such as winter wheat and canola, use ***Calcium-25*** in the fall for more profit next year!!

20. If my crops are subjected to drought or flooding, what will Calcium-25 do for me? What about my hay and pasture profits??

While no product can offer complete protection against drought, we have seen instances where normal yields were possible when ***Calcium-25*** was used as compared to *no* marketable yield with untreated farms. But wait until there is noticeable growth before you spray, like after a long-overdue rainfall! You must remember, though, that we can't control the rain, and in late summer you need rain for a even a normal crop. But...*we're still tryin'!!!* **Remember!! We can**

help at almost <u>any</u> plant stage of development almost all year!!! Later applications --larger crops!! **MORE PROFITS!!!!! Especially pasture and alfalfa in summer months!!**

21. What about my BRIX readings?

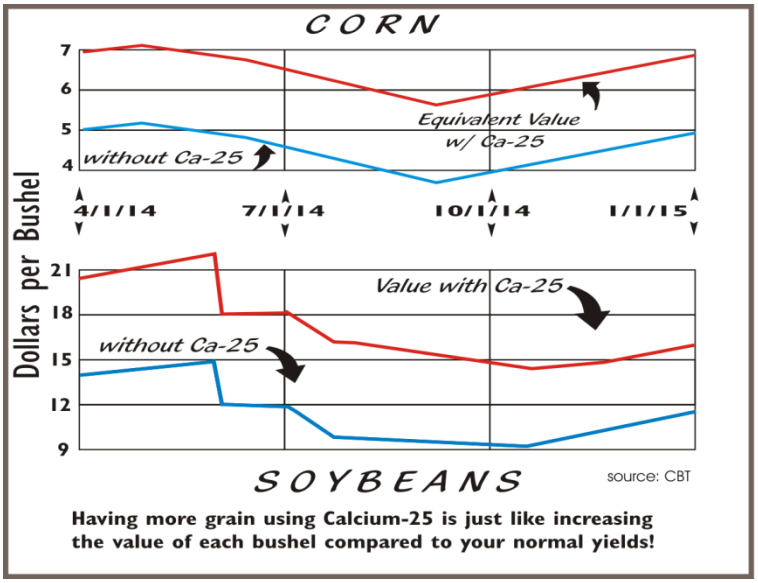
Calcium-25 **<u>will</u> increase your BRIX readings**. This product was developed using the same techniques that make your refractometer readings improve - an increase in substances such as sugars, protein, etc., compared to plants that are untreated. The best time to test is soon after applying ***Calcium-25***, usually after about 4 days or more for most plants. Increases in BRIX have been reported to be as high as **THREE TIMES** on alfalfa using ***Calcium-25***!!!!!!

22. What about open pollinated corn?

Calcium-25 improves open pollinated corn yields and *<u>seed size</u>*, since it causes an increase in the size of kernels (makes larger seed which produce larger corn plants the next year), and makes an **extra 2 to 4 *or more*** rows of kernels per ear – sometimes even more!

23. What is the overall effect on my dollars-per-bushel results if grain prices are lower than I like???

As grain prices vary, adjusting the total value of an acre after getting the increases you can see with ***Calcium-25***, and assuming the same bu/a you normally see, the equivalent value, based on the year 2011-12, results could be as shown below. That is, with ***Calcium-25***, your crop would have this *<u>equivalent</u>* value. For example, if you had 60 bushel beans and got another 30, this would be the same as getting 60 bushel beans that are **worth 1-1/2 times as much!!**



If you have any questions, please call before you spray!!

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