

Meetings and Announcements

UC Cooperative Extension in Kern County has received funding for a Master Gardener (MG) coordinator. Therefore, we expect to begin the MG program, probably next spring. The MG program offers classroom instruction in horticulture with a required volunteer-hour component. We have not had an MG program in Kern Co. since ca. 1993, when we moved to an educational outreach in horticulture without the volunteer component.

More information to come.

Fertilizers and Soil Acidity

Soils in Kern County are typically alkaline, with pH often 7.3 or greater. While many plants tolerate these pH levels, lowering the pH to near neutral or slightly below can improve performance of many plant species. Iron and zinc, in particular, become more available to plants if soil pH is acidic.

The best time to adjust pH in alkaline soils is before planting when sulfur or gypsum can be incorporated, followed by irrigation. (Gypsum is neutral in soil reaction and is useful in lowering soil pH only when the sodium level is high, not a problem in most soils of most landscapes.)

Many fertilizers react in soil to form acids and can have a limited effect on soil pH. Fertilizers may be advertised as being particularly suitable for “acid-loving” plants. Let us ask the question, is there a standard index for comparison of the acidity of different fertilizers?

The answer is yes, and the standard index for comparison of fertilizer acidity is the calcium carbonate equivalent. This number, often found on a fertilizer label, gives the number of pounds of calcium carbonate (lime) that would be needed to neutralize a ton of the fertilizer in question. The greater the number for calcium carbonate equivalent, the more acid is the fertilizer. In the table below are some fertilizers and their equivalent acidity in pounds calcium carbonate (CaCO₃) per ton of fertilizer, as was listed on their respective product labels. Of the fertilizers listed, ammonium sulfate and ammonium nitrate are the most acidic. Note that these two fertilizers are more acidic than some fertilizer products labeled to suggest extra acidity.

From these data, one can see that many fertilizers are acidic in soil reaction, and that a person need not necessarily buy a fertilizer labeled for acid-loving plants.

Fertilizer Material	Equivalent Acidity (lbs. CaCO₃ per ton)
ammonium nitrate 33-0-0	1240
ammonium sulfate 21-0-0	2200
urea 46-0-0	1420
single superphosphate 0-20-0	neutral
triple superphosphate 0-46-0	neutral
potassium sulfate 0-0-52	neutral
Vigoro Citrus & Avacado 10-4-8	500
Vigoro Azalea, Camelia, Rhododendron Food 4-10-10	200
Vigoro Vegetable Food 5-10-10	300
Vigoro All Purpose 6-10-4	400
Ross Evergreen 10-20-20	400
Ross Fruit, Nut, Tomato 9-45-16	900
Ross Tree & Shrub 25-10-10	700
Miracle Gro Tomato 18-18-21	500
Miracle Gro Roses 18-24-16	700
Stern's Miracid 30-10-10	1200
Best Soil Buster 2-5-0	230
Sulfur (included for comparison)	4620

How much of an effect will fertilizers have on soil pH? In most landscape situations, fertilizer has little effect on pH because relatively small quantities are applied and the calcium carbonate equivalent of many fertilizer products is low. Fertilizers are not agents of major short-term pH change, but continued use of high rates of fertilizers with high calcium carbonate equivalents can lower soil pH, as seen in some agricultural fields.

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Disclaimer: Discussion of research findings necessitates using trade names. This does not constitute product endorsement, nor does it suggest products not listed would not be suitable for use. Some research results included involve use of chemicals which are currently registered for use, or may involve use which would be considered out of label. These results are reported but are not a recommendation from the University of California for use. Consult the label and use it as the basis of all recommendations.

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