

RESEARCH UPDATE

Iron fertilizers have mixing, pH guidelines

by Kurt Winkler, RGB Laboratories Inc.

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and operation of their company.

These advisors should possess a business savvy. Combine their expertise with others who are experienced in the green industry. Rather than advice from your attorney or accountant, you need to hear from individuals who are not specifically familiar with your company.

Tracking cash flow

If you have not developed a cash flow budget, have your accountant devise one for you.

Such a plan identifies the amount of working capital your company will need and when it will be required in 1991. This reduces anxiety about cash flow because you will have cash reserves available when monetary pressure is highest. This often coincides with the early spring peaks for leads and service.

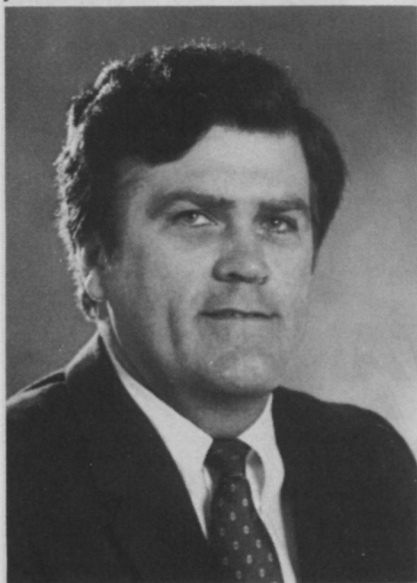
You're not alone

Most green industry companies will feel severe economic pressure in 1991. Developing a plan to operate during tight fiscal times will assist you in achieving your goals.

Make "financial management" your watchwords for 1991.

Know what you must do in anticipation of lower volume; prepare an alternative operating plan that takes into consideration a volume level of five to 10 percent below your anticipated budget plan.

Keep an eye on operations and tight fiscal management. Keeping yourself and your employees focused on the financial impact of everything done in the company will increase the fiscal success of your company both this year and in the future. **LM**



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TANK MIX pH in pH 9.75 WATER

Rate in 3 Gal. Water	Agri - Plex®	Ferrous Sulfate	Liquid urea/Ferrous Sulfate
1 oz.	6.86	5.10	3.44
3 oz.	6.40	3.50	2.86
5 oz.	6.20	3.33	2.66
8 oz.	6.10	3.22	2.52

Iron fertilizer applications are gaining attention as a way to provide green color to turfgrass without causing excessive leaf tissue growth.

Iron fertilization is a common practice on golf courses; now, lawn care companies are considering iron applications combined with lower rates of soluble nitrogen or in combination with more slow-release nitrogen products. This is especially important during spring and summer on cool-season grasses, since we do not want to stimulate leaf growth at the expense of root growth. Also, as the environmentally sound concept of "grasscycling" (returning clippings to the soil) gains favor, the controlled growth is even more important since we do not want to "make hay" on a home lawn or commercial property.

While the green industry accepts iron as a valuable nutrient, certain rules should be followed to get the most out of your iron application.

Tank mix guidelines

When iron is tank mixed with fertilizers, especially fertilizers containing phosphorous, the resulting tank mix should be clean and clear, without settling or clouding. When a white, cloudy appearance is observed, the iron is precipitating, or tying up with phosphorus, and this iron-phosphate precipitate is unavailable for plant uptake. Dry soluble N-P-K fertilizers usually contain a blue or green dye which masks this reaction, so this tank mix must be carefully observed.

Iron products mixed with controlled release nitrogen should again be clean and without sediment. If there is a purple sedimentation, then iron availability is reduced due to precipitation.

Amine herbicide and iron tank mixes should also be carefully observed: the mix should be a clear, slightly brown color. Iron that is not compatible with amine herbicides will have a murky brown color with slight settling. This is an interesting reaction because very lit-

tle available iron is lost, but broadleaf weed control may be reduced, particularly on deep-rooted perennial weeds. A compatibility check is advised, especially when using low-volume spray applications of 2 gal./1000 sq. ft. or less.

Rapid pH changes

While it's commonly known that most iron products acidify the tank mix, it is surprising how quickly and dramatically the pH can change, as shown in the chart above:

Liquid iron products containing nitrogen may have slight pH differences, but they are usually formulated at pH 2.0 to 3.0. Furthermore, it's important to remember that, practically speaking, water does not have the ability to resist change in pH. So regardless of your water source and its pH, the ending values are still about the same as shown on the chart.

As a general rule, universities and manufacturers suggest a tank mix pH of 6.0 to 7.0 when spraying fungicides or insecticides. Obviously, not all pesticides are affected by pH, but since it's difficult to keep track of all products that are affected, this is still a good rule.

Since iron is readily absorbed by grass leaf tissue, sprayers should be adjusted to achieve maximum leaf coverage. Low-volume applications will work with a fine spray droplet, but a large droplet should be avoided in this situation.

Chelates protect solubility

Any plant nutrient must be relatively soluble for plant uptake. But since iron is inherently insoluble, manufacturers combine iron with organic molecules called chelates. Chelates protect the iron solubility over a wide range of conditions. Chelation is a complex subject, but for practical purposes, fully chelated iron will avoid the tank mixing concerns mentioned previously. Non-chelated or partially chelated iron should be checked for compatibility. **LM**