

How Much Is Too Much?

NORCROSS, Ga.—How much fertilizer can be applied directly in the seedrow? That's one of the most common questions of small grain farmers in the northern Great Plains and the Prairies today. The interest in conservation tillage and the development of airseeders which allow direct seeding of crops into standing stubble give farmers the opportunity to apply all their fertilizer at planting in a one-pass operation.

Small amounts of starter fertilizer at seeding is a proven practice in cereal production. It gets the crop off to a good start and improves yields. However, too much seedrow fertilizer can cause severe germination damage, delayed emergence, delayed maturity and yield loss. Urea nitrogen is of particular concern, although high rates of potash can also be injurious to germinating seedlings. Current recommendations in western Canada suggest seedrow nitrogen plus potash should not exceed 40 pounds per acre and that no more than 25 pounds per acre of urea nitrogen should be applied with the seed. These guidelines are good for grain drills which placed the seed and fertilizer in close contact but are proving too restrictive for newer seeding implements which place the seed and fertilizer in wider bands.

Recent studies have shown that seedbed utilization, or width of seed spread, is critical to how much fertilizer nitrogen can be applied with the seed. North Dakota researchers demonstrated that increasing the seedrow/fertilizer spread width can increase the tolerance of cereals to seedrow-applied nitrogen. Using a 6-inch row spacing, they found that seed in a 1-inch band (17 percent seedbed utilization) could tolerate 20 to 30 pounds of nitrogen per acre. When spread over 6 inches (100 percent seedbed utilization), it was found that 80 to 100 pounds of nitrogen per acre could be tolerated. Similar studies in Alberta have successfully applied two to three times current recommended N rates with no germination damage or yield loss in wheat, barley or canola by utilizing 50 to 75 percent of the seedbed.

Other factors influence actual rates that are safe to apply. These include soil moisture, texture, lime content, pH, salinity, organic matter, nitrogen source, crop type and seed quality. Crops tolerate more seedrow fertilizer when seedbed moisture is ideal, when clay and organic matter levels are high, and when soil lime and salinity levels are low. Seedbed moisture is most critical. Seedrow fertilizer rates must be reduced if seedbed moisture is less than optimum.

New application guidelines for differing seedbed utilization are available. However, use caution when attempting to place high rates of fertilizer in the seedrow. Actual safe amounts of seedrow fertilizer can only be determined with on-farm trial and error. Don't be afraid to fine-tune the guidelines to suit local farm conditions. Seedrow width and seedbed utilization can be manipulated but many of the other factors that affect safe rates are site specific, and can vary within any field, particularly on soils with rolling topography.

Seed-placement is one of the most efficient means of nutrient application...but beware of the risks. A cautious approach will help maximize fertilizer use efficiency and profits.

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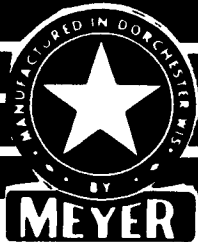
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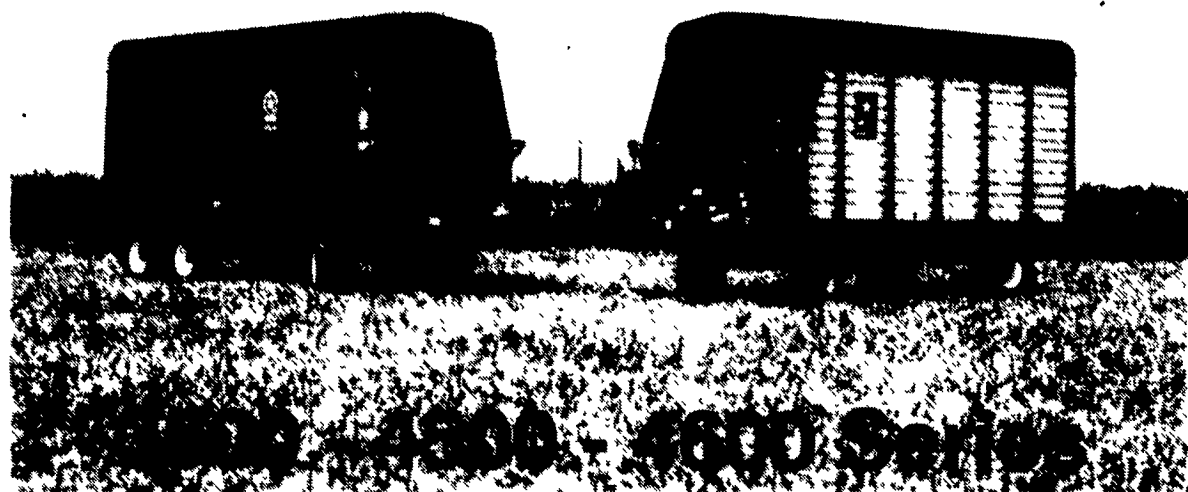
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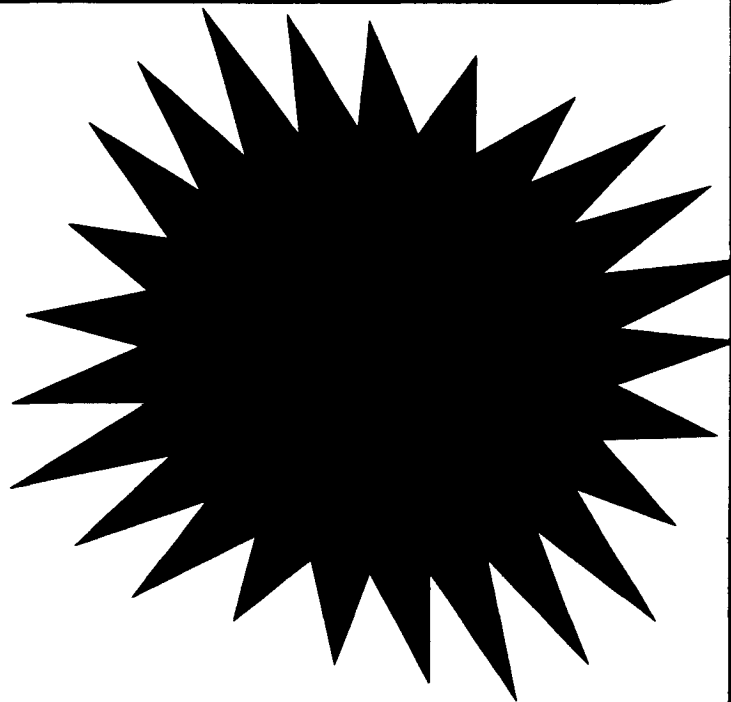
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