

MULTI-SHOOT OPENER PRECAUTIONS & RISK FACTORS

The development and increased use of multi-shoot knives for one-pass seed and fertilizer placement often brings up the question of how much fertilizer can be safely placed with the seed without causing germination problems or seedling damage. The answer to this question is very complex. In less than ideal conditions, mixing between seed and fertilizer may occur.

It is our company's policy not to recommend or endorse specific "safe" rates of fertilizer for multi-shoot openers due to the wide variance in the precautions and risk factors listed above. Most of our knives are tested at independent research facilities to verify only the placement of seed and fertilizer. We suggest that producers consult their local agronomist to establish acceptable fertilizer rates for their unique seeding conditions.

Consider the following factors when using any multi-shoot openers:

FERTILIZER SOURCE

Depending on the type of fertilizer used, damage can occur either through NH₃ toxicity or salt effects or a combination of both as in the case with blended fertilizer.

FERTILIZER RATES

Typically, the risk of crop seedling injury increases with higher rates of fertilizer.

CROP TYPE

Crops vary in their ability to tolerate seed-placed fertilizer, with cereals being able to withstand more than oilseeds and pulses falling somewhere in between.

SOIL MOISTURE

With soil at or near saturation point, the toxic effects of fertilizer are diluted so seeds can germinate and develop with few problems. If conditions are very dry, reduce the amount of fertilizer placed near the seed.

SOIL TEXTURE

Fine textured soils such as clay or clay loam tend to also reduce these toxic effects over coarse or sandy soils because of their ability to hold more water and absorb toxic free NH₃.

SEED QUALITY

With everything else equal, seed with poor vigor will suffer more damage from seed-placed fertilizer than seeds with high vigor. If seed vigor is questionable, have it tested.

ORGANIC MATTER

Higher levels of organic matter (OM) in a soil also lessen the risk of damage. For example, reduced levels of OM on dry, eroded hilltops seedlings are more prone to injury.

SEEDBED UTILIZATION

Or SBU is the proportion of the seedbed used for seed and fertilizer placement. Ex: 2" openers on 10" row spacing have a SBU of 20%. As SBU increases, the crops tolerance to higher rates of seed-placed fertilizer increases.

SEEDING DEPTH, PACKING AND SPEED

These points are also factors to take into consideration as they may compromise seed and fertilizer placement as well as the overall quality of the seeding operation.

ADVERSE SEEDING CONDITIONS

Excessively wet or dry soil at time of seeding can cause erratic seed placement, poor seed-to-soil contact and poor separation, which will also affect the amounts of seed placed fertilizer you can apply.

EXCESS AIR VOLUME

Higher air volumes can result in seed and fertilizer being blown out of the trench or mixing of seed and fertilizer in the trench.

IF ANY OF THE ABOVE CONDITIONS ARE LESS THAN IDEAL, IT IS ADVISABLE TO REDUCE YOUR FERTILIZER RATE ACCORDINGLY.