

## **Avoid salt risk from banded starter fertilizer materials**

Note the recommendations in the NC Ag Chemicals Manual, Chapter 4, Fertilizer Placement write-up. (<http://ipm.ncsu.edu/agchem/agchem.html> , see chapter 4, Fertilizer Placement section on p. 59 in the 2013 edition).

A maximum of 80 lb. of total N, K<sub>2</sub>O, and S; which are the more soluble macronutrients; should be placed in a 2 x 2 starter band position. P<sub>2</sub>O<sub>5</sub> tends to be less problematic since most will be retained on soil particles rather than in solution. The 2 x 2 band placement refers to positioning the fertilizer band 2 inches to the side of, and 2 inches below the seed. The exact risk of excess salt damage will depend on soil type and the weather (soil moisture). There is greater risk of salt injury on more sandy, low organic matter soils. There is less risk of salt injury when sufficient moisture is present to dilute the fertilizer salt concentrations.

Much less fertilizer should be placed in the seed furrow. Avoid in furrow placement for cotton. Again, the exact risk will depend on soil texture and weather; but a reasonable estimate for corn is to limit the rate to 10% of the above number. It is more risky, but possibly 15% of the above number would be okay. This would be 8 (and a more risky 12) lb total.

Total N + K<sub>2</sub>O contents for some typical scenarios follow.

10-34-0: 1.1 lb N/gal, so 5 gpa has 5.5 lb N and 10 gpa has 11 lb N  
11-37-0: 1.2 lb N/gal, so 5 gpa has 6 lb N and 10 gpa has 12 lb N  
30-0-0: 3.3 lb N/gal, so 2 gpa has 6.6 lb N and 10 gpa has 33 lb N  
3-18-18: 0.33 lb N + 1.98 lb K per gallon, so 3 gpa has 7 lb total N + K<sub>2</sub>O;  
5 gpa has 12 lb total N + K<sub>2</sub>O.

If micronutrient solutions are to be added to the starter fertilizer, note this should be considered as an additional salt. Recommended rates of banded Mn are 3 lb/ac, lower than the broadcast rate recommendation of 10 lb/ac. Recommended rates of banded Zn are 3 lb/ac, lower than the broadcast rate recommendation of 6 lb/ac. (From the NCDA&CS Crop Fertilization Manual) This means that if added to a product like 3-18-18, the total salt guidelines could be exceeded unless a low rate is selected.

Also note that fertilizer applied as a band for one crop may result in streaky availability if the subsequent crop is planted with a grain drill.