Is It Necessary to use starter fertilizer at planting .....??

For the 2008 and 2009 growing seasons many of you have begun to use much more broiler litter, turkey litter and other alternative nitrogen sources than in past years. Given the heavy use of these litters many of you have been asking "Is it necessary to use a starter fertilizer at planting even if I have applied an adequate amount of litter to carry the crop to topdressing.” The following trial was conducted on Corn in 2008 in the Piedmont area of North Carolina by Troy Coggins, NCCE agent, Davidson/Randolph Counties and NCSU Corn Specialist Dr. Ronnie Heiniger. Data was compiled from replicated, random block trials. Coggins and Heiniger plan to repeat this trial again for the 2009 season.

Broadcast 3-4 T Broiler Litter
Do you need 2x2 banded starter?

Questions & Answers from NC Corn Production Guide

Has there been an evaluation of yields of Bt corn vs. standard corn hybrids? Dr. John Van Duyn has been comparing Bt and standard corn yields for over 3 years. When corn borer, corn earworm, or southern cornstalk borer populations are high, Bt hybrids easily out-yield non-Bt hybrids. When these pests are not present, yields from Bt and non-Bt hybrids are similar.

Is there a difference in yield loss between corn that is field dried to 15% vs. corn that is harvested wet and heat dried to 15%? Reports in the popular press suggest that when corn is left to dry down in the field there is an invisible yield loss that occurs due to kernel respiration. Field studies in North Carolina showed that reductions in kernel weight as a result of respiration that occurred during...
field dry-down were very small (less than 1% weight loss), and that this only occurred on certain corn hybrids. Therefore, we currently don’t feel that there is a significant yield loss due solely to kernel weight loss in the field. However, there is a significant yield loss occurring from ear drop and kernel loss in fields where corn is allowed to stand over several weeks.

**Corn-Thresholds for Seeding Insect Pests.**

These thresholds assume a full stand; reduce the threshold by 1/3 if thin stands are encountered.

- **Armyworm** -- 20% of small seedlings (to 6 leaf stage) with significant leaf feeding or 70% of plants past the seven 7 leaf stage; armyworms present
- **Billbugs** -- 5% seedling loss in infested areas
- **Cutworms** -- 10% cut seedlings
- **Stalk borers** -- 10% seedlings infested
- **Soil insects (wireworms, rootworm, seed corn maggot)** - no threshold (record damage for historical purposes, to evaluate soil insecticide program, and to judge replanting questions)

"**Situations" Describing the Need for At-Planting Soil Insecticide Use**

**NC Corn Production Guide**

The five "Situations" presented below describe most North Carolina corn acres and may be used as general guidelines for determining the need for soil insecticide. The "Situations" represent typical conditions, which may affect the probability of pest insect occurrence and are applicable in many instances. However, conditions on every farm are unique and using these guidelines should be done in conjunction with the farmer's personal experience (see North Carolina Agricultural Chemicals Manual) (http://ipm.ncsu.edu/agchem/agchem.html)

Cutworms were not considered in the categories, other than for no-till, since most at-planting insecticides will not control high populations of these caterpillars. Scouting and post emergence treatment with an effective insecticide is most often recommended for cutworms, however, if these pests are a chronic problem Lorsban granules may be used (banded) as an at-planting treatment since, they are moderately effective.

**Situation #1, No Insecticide Needed.** This situation is characterized by conventionally planted corn with at least a yearly rotation; is on well drained soils low in organic matters that are not prone to cool, water soaked conditions; is on sites not excessively weedy in the previous year; and has little or no history of seedling loss due to insects. This situation exists in many Coastal Plain and Piedmont fields and insecticide use has a very low probability of being profitable. If no soil insecticide is used some minor pests, such as thrips, may make the crop look unthrifty in the early seedling stages but will not reduce yield. Untreated fields should be scouted for cutworms or other seedling insects and treated with a postemergence insecticide if warranted.

**Situation #2, Low Cost Insecticide Treatment.** If corn is conventionally planted, with yearly rotation, but with a history of general seedling loss (5%+) due to insects; is planted on high organic or cool, wet natured soils; and/or has had excessive weed growth the previous season (e.g. set-aside fields or taken-in pasture), then a general preventative soil insecticide program is suggested. In this case the lowest effective rate of the cheapest soil insecticide, which can be applied correctly, should be used. Counter, Furadan, Force, Lorsban, Phorate, and Thimet are choices that the grower can consider. Use Phorate and Thimet only as a "T" banded treatment since in-furrow application will likely reduce stands. Price should be the primary factor in making the insecticide choice. Tests under average farm conditions have produced a yield increase of about 5.7 bu/A with soil insecticide under this situation. Where wireworms are an anticipated problem, soil insecticide which can be placed into the seed furrow (Counter, Furadan 4F, Force, or Pounce G or EC) will give superior results.

**Situation #3, Fields with Billbug Problems.** In this case do not plant corn (corn after corn) if damage has been severe (25%+). Treat with Counter 15G (preferred) or 20CR in a T-band, or Lorsban 15G in a T-banded at labeled rates if damage has been moderate or less. High Counter or Lorsban rates (10-13 lbs of product/acre) should be applied in fields where billbug pressure is high and where long lasting control is needed (e.g. in non-rotated fields or fields next to last years corn). Rates can be reduced after approximately 160 rows from the previous years corn. Scout fields soon after emergence. Do not use Lorsban on 8%+ O.M. soils. All efforts to promote rapid seedling growth will be beneficial, especially the use of starter fertilizer. Plant early if possible. In severe billbug situations exist in an area, control may be less than desired, especially if plant growth is slow. Working with neighbors to synchronize rotations may be necessary to enhance the effectiveness of rotation. Correcting pH, drainage, and other problems will help reduce billbug problems. Billbug problems are enhanced by no-tillage culture.

**Situation #4, Non-Rotated Corn.** The lack of rotation
tends to build-up pests, including insects and nematodes. These fields often respond positively to a soil insecticide-nematicide. Unless information from field histories or nematode sampling (preferred) suggests otherwise, an at-planting soil insecticide may be beneficial. Not rotating should be avoided since rotation gives substantial, low cost benefits. In the Piedmont, there has been a long history of growing non-rotated corn with little damage from insects. However, in recent years the western and northern corn rootworms have become firmly established in the Piedmont. Rootworm damage is best avoided by rotation, but in non-rotated fields where rootworm has become a problem, a soil insecticide is suggested.

**Situation #5, No-Tillage Corn.** In no-tillage corn, soil insects and armyworms tend to be more abundant and seedlings typically grow-off more slowly (leading to more insect damage). Thus, a soil insecticide is suggested in this case. Often only an in-furrow treatment can be applied due to equipment limitations and only non-phytotoxic chemicals should be used (Counter, Furadan, Force, or Lorsban). Cutworms can be serious in no-till and several soil insecticides will give some control of cutworms when used as a banded treatment (Counter, and Lorsban). Tests under average farm conditions in the NE Coastal Plain with no-till corn following double crop soybeans have shown an average yield increase of 11.9 bu/A with soil insecticide under this situation. The use of insecticide plus starter or pop-up fertilizer often gives positive results (e.g. Furadan 4F + 10-34-0).

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**Feature Weed: Horseweed**

Horseweed, also known as Marestail is a common weed to Anson, Stanly and Union Counties. This is an annual weed that can follow either a winter or summer annual lifestyle. Generally, horseweed emerges in the fall where it over-winters in the basal rosette stage (picture 1). Young leaves are egg shaped with toothed margins becoming hairy with age. In the spring, generally April to May, horseweed bolts and develops into the form most commonly recognized as horseweed (Picture 2). Upon bolting stems become erect and hairy. Management is much easier when in the basal stage with an effective burndown treatment. These include glyphosate + 2, 4-D, glyphosate + Valor, glyphosate + dicamba; Gramaxone or Ignite.

Horseweed is a weed of special concern due to its history of resistance development. Resistance to paraquat, atrazine, als inhibitors as well as glyphosate has been confirmed though luckily these resistant populations do not all occur in North Carolina. Glyphosate resistance was first confirmed in North Carolina in 2003 in Nash and Edgecombe counties. Glyphosate resistant horseweed hasn’t been confirmed in this region of the state, but due to seed and pollen dispersal by wind, its occurrence is probable. The best way to combat this resistance is to avoid it by use of multiple modes of action.

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**Is There any Advantage to Using “Seed Applied Fungicides” for Overall Plant Health?**

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The following data was compiled by Dr. Dunphy from three North Carolina locations for the 2008 growing season.
Management of Seed and Seedling Diseases for Soybeans
“Things to consider when deciding if a seed treatment is needed”

1. Plant high quality seed.
2. Rotations with a grass crop such as corn or grain sorghum are generally beneficial in reducing population densities of soilborne pathogens.
3. Soils which tend to be poorly drained and/or cool should be planted later in the season when conditions for soybean germination and growth are optimal.
4. Consider resistant or tolerant varieties for fields where *Phytophthora* rot is frequently a problem. Seed treatments may be beneficial when planting in cool, wet soils or when seed is of marginal quality. In-furrow fungicide treatments may be considered when a persistent problem with *Phytophthora sojae* or *Pythium* spp. occurs and other options are unacceptable.