Pesticide applications, when required, should be done in accordance with Integrated Pest Management (IPM) principles and at the most advantageous time. There may be instances when insect infestations and plant disease protection overlap and permit the efficiency of a combined pesticide application.

**Integrated Pest Management**

IPM concepts state that control measures for all pests should be integrated into a crop management system that ensures economically viable crop production and environmental stewardship. A well designed program should consist of several pest management strategies. Crop scouting is the key to identifying what insects and plant diseases are present and the growth stage of the crop. When corn diseases and/or insect pests reach economic threshold levels, control measures should be taken to prevent further increases and crop loss. Selecting what practices work best on your farm requires careful consideration and implementation.

**Crop Protection**

Protecting corn from foliar fungal disease and adult corn rootworm (*Diabrotica spp.*) damage could be an example of combining pest control applications for efficiency, convenience and economic savings. The 2012 crop season has allowed many growers to plant corn early. Corn rootworm (CRW) adult beetles emerged earlier than normal in many locations. Growers could well find high levels of CRW adults present at the same time that they intend to apply a corn foliar fungicide. Regional geographic differences would be expected and not every year or situation will provide the opportunity for combined applications.

Combining corn insecticide and fungicide applications may save time and reduce application costs, but should be properly timed to both pest development and crop growth stage.

**Timing Corn Foliar Fungicide Application**

When weather conditions are favorable for disease development and incidence of disease is high, a foliar fungicide application may be beneficial. The length of time that foliar fungicides are typically active ranges from 14 to 21 days. The optimum application period takes into account the length of fungicide activity and time required to protect the plants during critical periods of development. For corn, it is important to protect the ear leaves during grain fill because the ear leaf and leaves above the ear contribute over 75 percent of the corn plant’s carbohydrates.

Several excellent fungicides are marketed and have label approval for corn foliar disease protection. Headline AMP® fungicide is an example, is a broad-spectrum fungicide and application is recommended when a few lesions from anthracnose, eyespot, gray leaf spot, northern and southern corn leaf blights, northern corn leaf spot, Physoderma brown spot, rust, and yellow leaf blight are observed on the leaves below the ear leaf prior to or at silking.

Proper timing and application techniques are critical to help maximize the effectiveness of Headline AMP® fungicide. The optimum application timing for Headline AMP® fungicide in corn is from VT (full tassel) through the R3 (milk) growth stages or prior to disease onset. Ideally, corn plants within a field should be at the same stage when Headline AMP® fungicide is applied. The 2012 BASF recommendation on corn is to apply Headline AMP® fungicide at 10 fl oz/A at VT to R3 (Figure 1). Please note the adjuvant restrictions on the left side of Figure 1.
Timing Corn Rootworm Adult Beetle Management

CRW beetles can potentially damage an existing corn crop as well as impacting a future corn crop. High beetle densities may feed on leaves and pollen, but pose the greatest risk when silk clipping results in unacceptable pollination or reduced kernel set. In general, if silks are clipped to one-half inch or less before pollination is 50% complete, control measures would be indicated. Adult female beetles also begin to lay eggs approximately two weeks after they emerge. These eggs represent potential pest problems in next year’s corn. Thresholds vary by state and planting density. In general, if adult beetle populations exceed ¾ - 1 beetle per plant, the potential for significant yield loss the next season may exist if no control tactics are instituted. Scouting is an integral part of successful CRW management. Monsanto recommends field scouting for CRW beetles during the key months when peak CRW beetle activity occurs (Figures 2 and 3). Due to the early hatch this year, growers should be scouting now. Foliar adult beetle sprays can be very effective in keeping CRW populations at manageable levels. Timing of insecticide applications is critical to reduce CRW damage or egg lay. Because of the extended period that CRW beetle damage can occur, more than one insecticide application may be required.
Many excellent insecticide products are available for adult corn rootworm beetle management. Using Warrior II with Zeon Technology® (lambda-cyhalothrin) insecticide as an example, it has label approval for CRW beetle control at the rate of 1.28 to 1.92 fl. oz./acre (1.92 fl. oz/acre for aerial application). The label specifies that this product can be tank mixed with other compatible agricultural products, but always add Warrior II with Zeon Technology® last. Overall control may be influenced by many factors including: CRW beetle emergence, mobility, crop growth stage, and environmental conditions. Because the development of pest resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Warrior II with Zeon Technology® is a Restricted Use pesticide.

**Best Management Practices (BMP)**

Although this publication specifically addresses combining insecticide and fungicide applications, it is important to utilize all appropriate Best Management Practices. Under high CRW pressure the dual modes of action of Genuity® SmartStax® RIB Complete® corn blend provide the most consistent control of CRW. In high pressure areas, fields where YieldGard VT Triple® or Genuity® VT Triple PRO® have been planted for three or more continuous years, use of multiple tactics can help decrease the CRW populations to a manageable level. First, crop rotation is one of the most effective methods to lower CRW pressure in the field. Second, growers can utilize a soil-applied insecticide at planting to control CRW larvae. Third, foliar spray(s) can be used to control beetles, which can reduce egg laying and subsequent CRW the following year.

Combining corn insecticide and fungicide applications may save time and reduce application costs, but should be properly timed to both pest development and crop growth stage.

**Sources**


When should Corn Insecticides and Fungicides be Combined? Continued from page 2

Continued from page 2