Corn Pests

Insects and Related Arthropods

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Several different types of insects and related arthropods attack corn from the time the seed is planted through harvest. Some pests attack more than one plant part or cause injury at more than one crop growth stage. Knowledge of corn plant physiology and development is helpful for predicting the severity of injury and may suggest ways to alleviate the potential for reduced yield. Corn, however, is less able than soybeans to compensate for mid-to-late season defoliation and injury to reproductive tissues. Plant vulnerability to insect injury also depends upon geographic location and climatic factors. For instance, in the southern United States, corn is attacked by more pests and in greater numbers than corn grown in more northern Corn Belt regions.

Generally, insects and their relatives cause four types of injury to corn plants: (1) injury to seeds and seedlings; (2) injury to roots; (3) injury to leaves, tassels, and stalks; and (4) injury to ears. Injury caused by specific pests is discussed in the sections on individual pests. Refer to the diagnostic key on pages 25–29 for help with recognizing injury caused by insect pests.

Injury to Seeds and Seedlings. Cold soil slows germination and plant emergence, extending the time available for subterranean pests (wireworms, white grubs, seedcorn maggot, seedcorn beetles) to feed upon and injure the plants. Injury to seeds often results in hollowed out seed coats as the only evidence that the seeds were planted. Plant death early in the season creates gaps in the stand, the severity of which depends upon the proximity and density of surviving plants. Symptoms of injury to corn seedlings include rolled leaves; discolored, sometimes purple leaves; wilted plants, possibly with dead whorls; stunted or dead plants; poor stands; and tillering of young plants. These injury symptoms are caused by several pest species, including wireworms, white grubs, chinch bug, corn root aphid, stink bugs, billbugs, cutworms, lesser cornstalk borer, sod webworms, hop vine borer, and stalk borer. Early season injury to foliage, such as that caused by flea beetles, may not be economically damaging if environmental conditions are favorable for corn growth and development. Early season tolerance to insect injury lasts until emergence of the fifth or sixth leaf because the growing point of a corn plant remains below ground and is relatively protected from serious injury.

Injury to Roots. Injury to corn roots can be caused by white grubs, corn rootworm larvae, and several other pests. Rootworm larvae can damage the main root system severely. Root tips may appear brown and chewed back (pruned), and larvae may tunnel into larger roots, resulting in a physiological reduction in yield because the plants cannot take up moisture and nutrients easily. Also, brace roots may be severely damaged, resulting in lodged plants with gooseneck-shaped stalks. Yield losses occur because photosynthetic efficiency declines as optimal leaf display is altered by lodging.

Injury to Leaves, Tassels, and Stalks. Insects may injure corn leaves from the seedling stage through maturity. Injury to seedlings caused by billbugs appears as irregular holes in unfolded leaves or as a series of transverse, oblong holes in expanded leaves. On larger plants, pinholes, small and large lesions, ragged leaves, and shredding of leaves can be caused by European corn borer, fall armyworm, southwestern corn borer, stalk borer, and corn earworm larvae. Similar leaf injury is caused by grasshoppers.

European and southwestern corn borers feed on several corn plant parts, depending upon the time of attack. Although young larvae typically cause minor injury to leaves, older larvae tunnel within stalks, damaging the plant's vascular system. Injured plants transport water and carbohydrates less efficiently, so the plants may be smaller and have fewer leaves and weakened stalks. Injured plants also are more susceptible to stress, particularly if water is not readily available. After feeding on leaves in the whorl, stalk borers and southwestern corn borers feed in the nodes and tunnel in stalks, resulting in plant lodging and/or ear drop. Southwestern corn borers also girdle the stalks. Broken tassels can be caused by tunneling of corn earworm, fall armyworm, and European corn borer larvae. If injury to the stalk or shank occurs during reproductive growth stages, injured plants may not be able to reallocate pho-