Gully Erosion Management

With the heavy rainfall received in some areas of Nebraska this spring, you most likely have some gully erosion in your fields. Erosion not only reduces your soils productivity, but will also cause field and waterway damage. This may be a one-time effect from the extreme rainfall, but many fields have gullies that form every year from field runoff, especially in tilled fields. Entire field tillage or tillage of the drainageway, destroys soil structure, reduces surface cover and increases the risk of erosion. Even though till these drainage ways do smooth them out, this will most likely still be a problem next year and more topsoil will be lost.

Precipitation Timing and Risk of Erosion

Most of Nebraska’s precipitation comes from April to August, which is during the typical crop-growing season. The surface cover provided during the growing season often limits the amount of soil erosion. If precipitation comes before the crop is created, it may significantly impact the rainfall runoff rate and soil stability. Even with the typical rainfall pattern, there is a probability of receiving a significant rainfall event outside of the growing season. According to the High Plains Regional Climate Center, Ashland, Neb. has a 50 percent probability of receiving a 1/2-inch of precipitation within a 15-day period on November 1 (see precipitation probability graph at right). The same probability can be said for Nov. 1. These dates are outside of the growing season and many gullies, especially in tilled fields, have already been killed. This tillage severely increases the risk for erosion, especially in conventional tillage following soybeans. For most years, it is often the middle of May before crop growth is significant enough to cover the soil surface. At this time of year, there is a 45 percent probability of receiving 2 inches and 20 percent probability of receiving 3 inches of rainfall within a 15-day period.

Topsoil and Crop Yield

A study by Papiernik et. al, in Minnesota added 15-20 cm of topsoil from the lower slope of an eroded field to the upper slope and saw a 30 percent increase in corn and soybean yield. They also saw a 50 percent (year 1) and 20 percent (year 2) grain yield reduction where 15-20 cm of topsoil was removed. This is just one research project, and it may not perfectly translate to Nebraska soils. However, it is certainly possible to retain topsoil in the field, and this is one example.

Management Options

It has been shown fields with continuous no-till have a significant impact on reducing soil erosion. No-till fields typically have a greater infiltration rate (among other benefits), thus reducing the amount of runoff in high-intensity rainfall events. Even though no-till and surface residue management is fairly effective at reducing erosion, gully erosion can still exist in concentrated flow areas during extreme rainfall events. Whenever rainfall rates exceed infiltration rates, especially on saturated soils (such as Spring 2015), other methods may be needed to reduce the gully erosion.

Use terraces to intercept the runoff and grassed waterways or underground tile lines to carry the water away from the field without causing severe erosion. If your situation does not allow for the building of terraces, tile drains or grassed waterways, winter annual cover crops may provide short-term coverage without sacrificing too much of your crop. Winter annual cover crops, such as cereal rye, may provide adequate growth in the fall to reduce fall and early spring erosion in these gullies, especially after soybean harvest. These winter annuals can then be killed using a herbicide in the spring before planting. This added cover will help reduce soil loss and the need to fix gullies year after year.

Pruning Raspberries

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Raspberry crowns live for many years, but their canes are biennial. Each year new shoots grow from buds in the crown. Late in the summer, these new canes develop lateral branches that fruit the following year. Early next spring, fruit-bearing shoots grow from these buds. After the canes develop, the old canes die and new shoots spring up from the crowns.

It’s important to understand how raspberries grow, so you may want to remember this year’s pruning dates once you have finished harvesting. These fruiting canes may be removed any time after harvest, but it’s a good idea to remove them sometime late this summer or fall. They should be cut off close to the base of the plant, removed from the planting and destroyed. Here are more specifics for each type of raspberry.

Red and Yellow Raspberry

(Popular Crop Type)

Past Harvest Pruning

When the raspberries have fruit been harvested.

Ideally, this pruning is done from the middle of July to early August, after the fruit has been harvested. This allows new canes to grow and become fruit-bearing canes for next year. It also allows the raspberry to begin setting flower buds for next year’s harvest. This pruning can be done by hand or with a mower. After mowing, new canes grow and become fruit-bearing canes for the following year. The remaining canes are removed after harvest.

Harvest

Remove all fruiting canes after harvest

Pruning Schedule After the First Year

Raspberry pruning is typically done during the dormant winter period. The following year, the new shoots will grow and become fruit-bearing canes. The new canes are then pruned to remove the winter-killed tips and thin the cane system. The canes can be pruned to 1-foot lengths in spring or fall. In the summer, the canes can be pruned to 2-foot lengths in the summer. The canes can be pruned to 3-foot lengths in the summer. The canes can be pruned to 4-foot lengths in the summer.

Pruning During the Growing Season

In early summer, the canes can be pruned to remove the winter-killed tips and thin the cane system. The canes can be pruned to 1-foot lengths in spring or fall. In the summer, the canes can be pruned to 2-foot lengths in the summer. The canes can be pruned to 3-foot lengths in the summer. The canes can be pruned to 4-foot lengths in the summer.

Black and Purple Raspberries

Post harvest pruning on black and purple raspberries is done during the dormant winter period. The canes are then pruned to remove the winter-killed tips and thin the cane system. The canes can be pruned to 1-foot lengths in spring or fall. In the summer, the canes can be pruned to 2-foot lengths in the summer. The canes can be pruned to 3-foot lengths in the summer. The canes can be pruned to 4-foot lengths in the summer.

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