WASHINGTON COUNTY
Soil & Water Conservation District
NEWSLETTER
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Water Quality for Cattle

By Robert Kalbfliesh, District Technician

As of July 14th, the weather maps show our area in the category of abnormally dry. That's defined as having lower surface water levels, lower than average soil moisture and the potential for stunted crops. The average rainfall for June is 4.49 inches, at the office here in Greenwich, we have recorded 2.01 inches for the month. So far in July we have recorded .77 inches of rain, normal rainfall is about 4.70 inches. It is Dry! You can see it in the crops, corn is shriveling, second cutting of hay isn't coming, and pastures have run out. As we can see the dry weather is affecting crops, but how does it affect the Quality of Water for Cattle. Water is the most important nutrient for cattle, it accounts for 50 – 80 percent of an animal's weight and is involved in every physiological process. It is extremely important that cattle have free access to all the quality water that they will consume. Without water, feed intake greatly decreases, dehydration sets in, and body functions fail. During a drought water quality and availability must be checked every day. Water requirements for cattle depends on size, stage of production, condition and average daily temperature. A cow – calf pair on a 90-degree day requires 2.0 gallons of water per 100 lbs. of body weight. A mature bull needs 15 to 20 gallons of water per day during the summer months. Diet also plays a role in the requirements for water. If the feed being consumed is lush and contains 75 percent water, much less is needed.

Factors affecting water quality:

- Nitrates: Nitrates from fertilizer and more can affect water quality. During periods of drought, ponds and streams can become stagnant and evaporate, resulting in higher concentrations of nitrates.
- Mineral Content: Minerals such as sulfur, iron and magnesium can decrease water intake because of foul taste and odor. High levels of iron and sulfate can bind and prevent the absorption of copper and zinc, which can lead to deficiencies.
- Water Temperature: Water temperature can affect cattle performance. Cool water actually helps maintain proper body temperature and will increase the amount cattle consume. Shallow ponds can heat up in the summer leading to decrease water intake.
- Algae: Surface water that is rich in nutrients can contain a blue-green algae. This algae actually is bacteria that potentially can produce toxins that can kill cattle. The algae can be controlled by eliminating the source of nutrients entering the water by aerating the water, fencing cattle out of water source, and keeping waterers cleaned out.

In conclusion, quality water is the most important nutrient for cattle. Sometimes providing clean water is over-looked in our busy schedules. Most problems occur in drought conditions like we are experiencing now. Now is a good time to evaluate your water source and system to make sure you are providing the best quality water possible. Take a few minutes from your busy day to observe your cattle drinking…you'll be glad you did. ■

Washington County Soil & Water Conservation District Newsletter is published twice a year by the Washington County SWCD. The Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture, is an equal opportunity provider and employer.

Agricultural Environmental Management Program

By Amber Luke, District Technician

The Agriculture Environmental Management (AEM) Program is a New York State funded program administered at the local level by the county Soil and Water Conservation Districts. The AEM program is a 100% voluntary, incentive-based program to farms that is available through working with their local Soil and Water Conservation District (SWCD). The goal of the AEM program is for SWCD's to help farmers make cost effective science-based decisions to protect and conserve natural resources while at the same time reaching the farms goals. The AEM program framework is set up to be a fluid 5-tier process starting with a tier-1.

Tier 1	Inventory current activities, interests, and potential environmental concerns of the farmer.
Tier 2	Document current environmental stewardship and assess and prioritize areas of concern.
Tier 3	Develop conservation plans addressing concerns and opportunities tailored to farm goals.
Tier 4	Implement plans using available educational, technical, and financial assistance.
Tier 5	Evaluate practices and plans for conservation and farm viability.

Recently Cost Share funding has been added to the AEM framework through the Tier 4 Track. This funding is very limited and there are requirements your farm needs to meet to be considered for this funding. You must be actively participating in the AEM program and completed Tiers 1- 3 and have them on file with your local SWCD to be considered for funding. The AEM program has just recently moved to a 2-year framework as well, which means Tier 4 funding is only available every 2 years through the Tier 4 Cost Share Track.

An example of a recently funded project is the implementation of a Riparian Buffer along a river. This river seasonally overtops its banks, and the overflow goes directly through the farm's field. To help prevent soil loss, crop damage, and stabilize the riverbank during times of high water the farm worked with the Washington County SWCD to implement a riparian buffer in the area that frequently gets flooded. This project was partially funded through AEM Tier 4 cost share funding.

If you would like more information about that AEM program or are interested in participating in the AEM program, please contact the Washington County SWCD office at 518-692-9940 Ext. 5 or email amber.luke@ny.nacdnet.net. ■

AGRICULTURAL
ENVIRONMENTAL
MANAGEMENT

AEM

Japanese Knotweed: What You Need to Know

By Lyndsy Hilder, District Technician

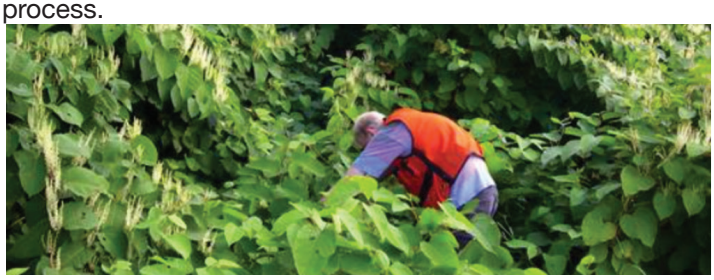
Japanese Knotweed is a unique invasive plant that is known for being very aggressive. This plant is easily found along roadsides and riverbanks throughout the spring, summer and into fall, but it is also known for bursting through pavement and even sneaking into cracks in a foundation. While it may have been brought to America as an ornamental plant for gardens, it has become a problem that is virtually impossible to get rid of.

Identification: A herbaceous perennial that forms in large clusters and can grow up to 13 feet tall. It has stems that resemble bamboo that are hollow; it produces large, broad leaves that come to a point. It blooms in late summer and early fall, creating string like clusters of small greenish-white flowers.

Lyndsy Hilder, Salem N.Y.

How it Spreads: While this plant does flower and produce seeds, it is best known for spreading through the rhizomes within its roots. It is commonly found in moist, unmanaged areas including along roadsides and riverbanks, but can survive in almost any soil type. Disturbing the soil around the plant or the plant itself can cause it to spread. Stress on the plant can cause its roots to spread out and create new shoots while trying to protect itself. Its roots are very hardy and even the tiniest fragment can have the ability to regrow a completely new plant if left in the soil.

Why is it invasive?: Japanese Knotweed grows in thick, dense stands and grows at a very fast rate. Once fully grown it can shade out native plants that try to grow beneath it and can make it very difficult for animals to be able to move through it. It can also consume large amounts of minerals and nutrients which limits the nutrients available to nearby species, specifically native species. As well as affecting the growth of native species, it is also a very difficult plant to remove. Its roots are incredibly hardy and they are nearly impossible to remove completely from an area which can make removal a very long, difficult process.



Tom Heutte, USDA Forest Service, www.invasives.org

Removal methods:

Mechanical and Manual Removal:

Small stands of Knotweed can be controlled through repeated cutting or pulling of the stems during the growing season. This method requires a lot of revisiting as the roots will continue to send out new shoots. Hand cutting or mowing are not recommended due to the ability for the plant to grow from fragments and should only be used if no other options are available. Digging up the plant and roots is a better option for handling this plant as you are removing the entire plant. Large stands are very difficult to remove as it is hard to tell how deep the roots have been able to grow, and may also require revisiting the area to continue to dig up and remove the new growth over a period of years. Plant parts should also be disposed of properly to prevent growth in other areas. Stems and roots should be contained in garbage bags or dried with little or no soil contact to prevent sprouting, do not compost any part of the plant. Smothering is a method that more people have begun to use to get rid of the plant. In the early spring, before growth has begun, you can cover the area with heavy plastics and geotextile fabrics which will prevent the plant from being able to access sunlight and will begin to kill it off. You will need to weigh down all edges of the fabric and continually check on it as sprouts could be able to grow through the fabric, especially through any small tear or puncture. This may take a long time to completely kill off the plant as the roots hold a lot of energy and can go dormant for up to 10 years and still be able to produce a plant. Any type of manual or mechanical control will require a strong commitment to continue to visit the site and maintain the new growth as Japanese Knotweed is extremely aggressive and may take years to get rid of.

Chemical Removal: Chemical removal has been seen to be more effective in the removal of knotweed, but it can have more impacts as the chemicals can kill off surrounding plants and cannot be used around water sources. Methods include spraying, wicking, injecting and pouring and can be used in conjunction with manual and mechanical methods such as cut and spray. Foliar treatments are best in late summer as the plant is beginning to transport nutrients to the roots, this will kill off the leaves and prevent the roots from gaining more energy for the following year. Larger patches may require many years of treatment as the roots are able to regrow. Cut stem treatment is where the stems are cut about 2 inches above the ground and then immediately sprayed with a chemical solution. Stem injection has been proven the best solution but has to be done by a trained professional and it is time consuming.

Japanese Knotweed has been taking over and has recently been seen as a problem that needs to be taken care of. While removal can take many years, it will be very rewarding as it can make your land more visually appealing and can protect the foundation of your house from being damaged. With all invasive species, prevention and education are key because it is best to prevent an issue than having to try to deal with it later. ■

I could use a drink...A guide to drought symptoms in crops

By Amber Luke, District Technician

Here in Washington County, you may have noticed Rivers are low, farm ponds and creeks are drying up, and lawns are turning brown. For some it has been a devastatingly dry summer on top of increased fuel costs and fertilizer costs and inflation on everyday items. Most importantly drought signs are popping up everywhere in crop fields. The U.S Drought Monitor now has most of Washington County rated as abnormally dry. Just like everything each crop is affected by drought differently and there are different signs for each crop. Drought stress is something that you can easily see in crops as long as you know what indicators to look for, but first we need to know the science behind the word drought. Evapotranspiration (ET) is typically referred to in relation to a plants water demand. ET is a combination of soil water evaporation (E) and water used by the plant during transpiration (T). Transpiration is the mechanism by which water moves from the soil through the plant and into the atmosphere. We will now go through the different signs of drought stress in a few common crops in the area.

Corn:

Plant transpiration increases as the corn leaf area increases as corn matures. The greatest water demand for corn is during the late vegetative stage to early reproductive stage (right as tasseling occurs). Most nutrients available to corn is dissolved in solution that is taken up by the roots and made available to the plant. When the rate of evapotranspiration exceeds soil water supplies this will result in yield reductions due to lack of water and nutrient uptake. The most noticeable symptom of drought in corn is corn leaf rolling. This is used as a way for the corn to reduce its leaf surface area reducing transpiration in hopes to conserve water. You may also notice when looking at a corn field there will be a grey coloring. This is due to the greying of leaf tissue in drought conditions that are more severe. Often drought stress will cause delayed tasseling/silking and causes corn to be shorter due to reduced stem and leaf cell expansion. If water stress occurs during pollination (tasseling through silking) for a long enough period in combination with high temperatures, there is the potential for corn silks to become non-receptive to pollen, reducing the number of kernels per ear. If drought stress occurs during grain fill it could lead to shortened grain fill periods, increased lodging, fewer kernels, and lighter kernel weights.

Soybeans:

Soybeans respond to drought stress by flipping their leaves. This means the underside of the leaf will be facing up. This is a tactic that soybeans use to reduce transpiration. Prior to flipping their leaves, you may start to see some diminished vegetative growth. During severe drought stress the soybean leaf will trifoliate or will close with the center leaflet being sandwiched between the outside leaflets. Drought stress will reduce water available to the plant and can reduce nutrient availability and uptake resulting in smaller plants. On the other hand, during a drought the soybean plant will often switch its energy to root growth creating a large root structure so that when there is water available again the plant can continue vegetative growth. The effects of drought are less than that of corn as long as conditions don't persist. Drought can cause early flowering and reduce pod numbers. If drought conditions occur during pod set or seed filling stages, the plant will not be able to set new pods. Drought during pod set can reduce pod numbers by up to 20 percent due to flower and pod abortion. Soybean yield loss due to drought is compounded by the lack of nitrogen mineralization and nitrogen fixation that occurs during dry conditions.

Apples:

Symptoms of drought stress in apple trees include wilting, yellowing of leaves, advanced leaf fall, and premature ripening or fruit drop. Often drought stress coincides with warmer temperatures. When drought stress and heat stress occur at the same time you may see scoring of leaves in addition to symptoms mentioned above. Over many years apple orchards have been breeding for drought tolerance in rootstocks. This means that some apple varieties are more tolerant to drought than others. Large established apple trees with deep roots, standard sized trees, and semi dwarf apple trees will be more drought tolerant. While newly planted trees and dwarf apples trees will be more sensitive to drought stress.

Alfalfa:

Alfalfa is well adapted to be drought tolerant when managed correctly. Drought stressed alfalfa will flower earlier when the plant is still quite short. This is the plants natural response in attempt to set seed in the event that drought continues, and the mother plant dies. If severe drought persists alfalfa will go dormant. When soil moisture returns to adequate levels buds in the alfalfa crown will grow new shoots and if adequate soil moisture continues the shoots will grow to a normal height.

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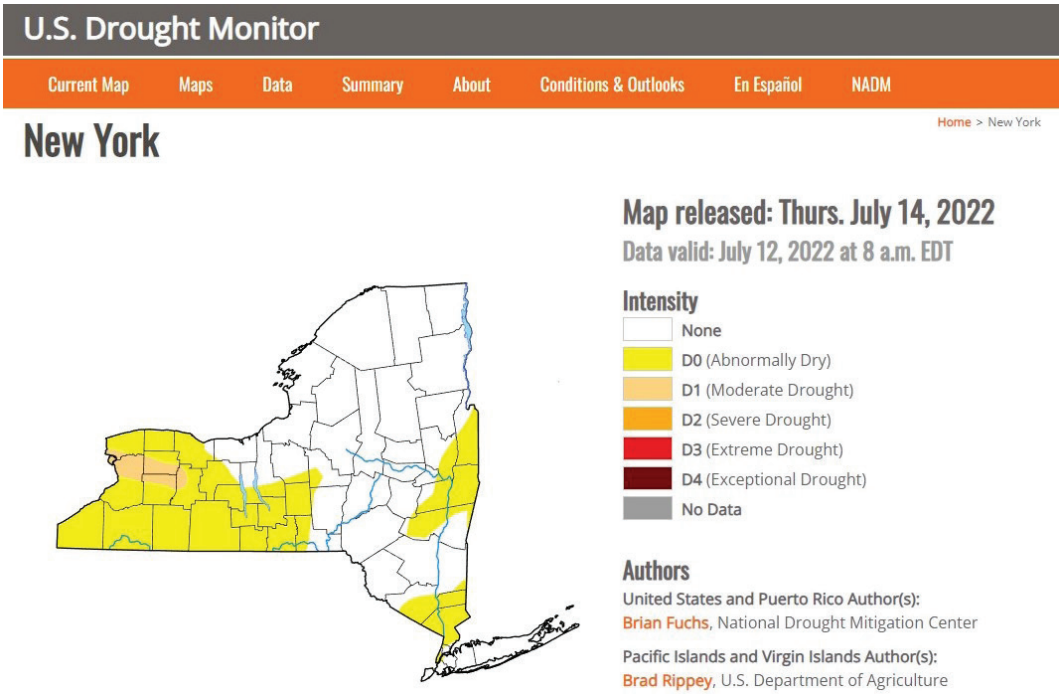
As the summer progresses it is important to know that we all depend on each other and that everything is connected. If crops don't produce as many flowers there will less for pollinators and if crops don't get pollinated, yields will be reduced. And if there are reduced yields there will be less food for livestock and reduced veggie and fruit crops leading to less produce at your grocery store or local farmer's market. If yields are down, there's a potential for increased prices. Times are hard now; inflation is high, and we are all stressed about one thing or another whether you are a farmer or not. But let's all remember to be patient and kind and let's pray for some rain! If you are looking for drought information you can access the U.S Drought Monitor website at https://droughtmonitor.unl.edu/CurrentMap.aspx or you can access the Climate Smart Farming website http://climatesmartfarming.org/tools/csf-water-deficit-calculator/ and use the Water Deficit Calculator to calculate locally how much water you have received. ■



Farm Service Agency Food Safety Certification for Specialty Crops

The Food Safety Certification for Specialty Crops (FSCSC) program provides assistance to specialty crop operations that incurred eligible on-farm food safety program expenses in 2022 and 2023.

These operations incur significant costs to comply with regulatory requirements and market-driven food safety certification requirements each year, with little opportunity to recover increased costs.

To be eligible for FSCS, applicants must meet the following:

- be a specialty crop operation
- have obtained or renewed a: 2022 food safety certification that was issued between June 21, 2022 - December 31, 2022 or 2023 food safety certification issued during calendar year 2023, and have paid eligible expenses
- meet the definition of a small business or very small business

Specialty crop operations may receive reimbursement for developing an initial food safety plan, food safety certification, certification upload fees, microbiological testing and training.

Specialty crop operations that obtain their food safety certification through a group model under a food safety management system, are eligible for their share of eligible expenses paid by the group, in addition to any eligible expense incurred individually.

The application deadline for program year 2022 is January 31, 2023. Contact the Greenwich FSA office for more information (518) 692-9940, Ext. 2 ■

SWCD Welcomes Summer Interns

Alyssa Freeguard

Hi, I am Alyssa Freeguard and have recently joined the Washington Country Soil and Water Conservation District for the summer of 2022 as an intern. I am a 2022 graduate of Argyle Central School District. In August I will be attending SUNY Cobleskill for running and for my bachelor's degree in environmental science and wildlife management.

In my spare time I enjoy many activities, such as running and hiking, and spending time caring for my farm animals and spending time with family.

I completed a two-year program at BOCES – Environmental Conservation and Forestry Program. The program is taught by Sherri Slater, and you learn many things about how to maintain a suitable environment for animals, how to read a compass, surveying, soil profiles and so much more. If you are looking at doing a career that has to do with the environment, I highly recommend doing this program. This is a great program that will help you get a head start with your future plans.

This summer I will be hydroseeding in the southern end of the county. I am excited to be learning and growing this summer to expand my skills and knowledge in conservation as well as concurrently giving back to my community.

Lainey Koval

Hello! My name is Lainey Koval and I am interning with the Washington County Soil and Water Conservation District this summer. I grew up just across the river in Stillwater, NY where my family operates a dairy farm, Koval Brothers Dairy. This fall I will be a junior at Cornell University where I am studying agricultural sciences with a focus in business management and a minor in animal science.

During my free time this summer you can find me at Lake George with my family, getting cows ready for the fair, or hiking with my dogs. I am excited to be joining Soil and Water this summer and look forward to learning from and assisting the team on projects throughout the county. ■

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