Tri-Basin Irrigator

Volume 18, Issue 6 *August 2, 2018*

Program Information

EQIP and CStwP:

EQIP – Signup deadline for 2019 funds will be November 16, 2018.

CStwP – We are nearing the finish of writing our 2018 contracts.

NSWCP: Funds are available for irrigation, rangeland, and erosion control practices. Stop by your local NRCS.

ENERGY EFFICIENCY GRANT: Signup deadline for 2019 funds will be October 31, 2018. For more information contact Kelley at Rural Development at the Kearney USDA Service Center at 308-237-3118, Ext. 4 or at 308-455-9837.

Calendar of Events

Aug 6: CNPPID Board of Director's Meeting – 9 AM

Aug 14: TBNRD Tour (AM) and Board Meeting – 1:30 PM

Aug 14: Soil Health Field Day @ Minden, NE – See attachment and the web for more info: http://www.notill.org/events/getting-started-with-soil-health-field-day

Aug 23: West Central Research Field Day @ N. Platte, NE - For more info, goto: https://go.unl.edu/water-crops-field-day

REMINDER to those with HEL cropland:

Ephemeral Gullies must be controlled in order to remain eligible for the farm program, federal crop insurance, and other USDA benefits!

We have had good rains this season. As we approach harvest, concentrated flow areas on Highly Erodible Land (HEL) could be present. These are the areas that are disked and shaped when ephemeral gullies are formed. Tillage to smooth these gullies is not a control practice. Controlling these areas means to prevent the gully from happening in the first place. Tillage hides the problem and allows the problem to continue. Practices to control ephemeral gullies include no-till, cover crops, terraces, waterways, erosion structures, etc.

Each spring a random selection of HEL tracts is pulled for status reviews. NRCS then makes field visits to ensure the HEL acres are meeting the HEL conservation plan requirements. One of the things that will be reviewed in the field will be the presence of ephemeral gullies as well as all the other practices in the HEL conservation plan.

For your information, I have attached Nebraska Agronomy Technical Note NE-111 with more information about this topic. This Tech Note includes a section providing guidance on cover crops to address these issues. Also attached is a sheet with guidance on treating ephemeral gully erosion with perennial grass.

If you have questions about this issue, contact your local NRCS office.

Curtis's Column

Ultrasonic Flow Meter Measurements Are Available!!!

Are you wondering how much water is flowing through your irrigation system? If so, you can request an ultrasonic flow meter measurement. This portable flow meter clamps onto the outside of the pipe and can measure the water flow.

The ultrasonic flow meter can be used to determine how much water your well is pumping. It can tell you how much water is going into your pivot system. It can be used to determine how much water you are losing from leaky gates and gaskets. It can be used to determine the amount of water you are applying to your field. It can also be used as a check against your permanently installed flow meter.

If you wish to request an ultrasonic flow meter measurement, you can contact Curtis Scheele at 308-995-6121, Ext. 3 OR Nolan Little at 308-995-6688 to schedule an appointment.

Irrigation Meter Calculator:

Here is a nice little link to a website that will calculate how much water you are pumping. Simply select your flow meter output units, a beginning flow meter reading, an ending flow meter reading, and the amount of acres irrigated. Select the calculate button and the answer is provided. **NOTE: When typing in your flow meter readings, DO NOT convert your readings.** Use the actual readings from the flow meter. For example, if your flow meter reads in Gallons x 100, just type in the gallons. It will multiply by 100 for you. Or if it reads in acre-inches x 0.01, just type in the acre-inches and it will multiply by 0.01 for you. Here is the link: *http://cropwatch.unl.edu/irrigationmetercalculator*.

Water Meter Calculator App:

A University of Nebraska-Lincoln Extension app will help irrigators calculate the amount of water pumped by their irrigation pumping plant.

The Water Meter Calculator App allows the user to store data, such as field size in acres, flow meter units and allocation and annual irrigation caps for each field.

The user inputs the beginning and ending meter reading and the app calculates the amount of water pumped for the field and on a per acre basis. The app keeps track of total water pumped for the irrigation season, the remaining allocation for future years, the annual cap remaining as well as any annual cap penalties.

UNL Irrigation Apps Available:

- Water Meter Calculator App - See more info above.
- Irrigation Pumping Plant Efficiency Calculator
- Agriculture Irrigation Costs

Goto *http://cropwatch.unl.edu/archive/-/asset_publisher/VHeSpfv0Agju/content/monitor-irrigation-data-from-your-phone* to find out more about these apps and for links to purchase these apps.

CNPPID Notes

The value of good farm decisions;

Central is a strong supporter of precision irrigation management; not only can it save water for future use but the economics of producing great yields with the least amount of water is so beneficial to a farm operation. As we alluded to in the last edition, the economics of lifting water from a Central canal rather than lifting it from an aquifer is positive; horsepower comes at a cost. Our E-65 and E-67 canals have only limited space to add deliveries; the Phelps Canal has more room.

The economics of moving from gated-pipe delivery to pivot irrigation or sub-surface drip (SDI) is also positive. Especially on pivot corners, use of a pivot swing-arm or SDI will reduce the cost to irrigate over the long term.

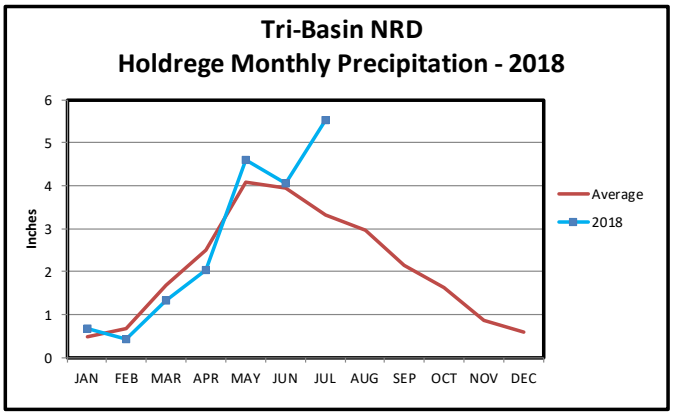
We all know weeds can substantially rob soil water without giving back a return. It makes economic sense to control them. Insects and bacterial/fungal diseases rob yield. Non-chemical means of exclusion and precision placement of these costly inputs makes good economic sense. Rainfall is an enormous economic plus but only if there is room for it in the root zone. While no one can control the weather, irrigators can control the amount of room they leave in the root zone for rain to infiltrate between irrigations. Finally, smart input cost and marketing decisions can produce substantial economic gain.

Yield monitors are good precision management tools; the yield maps they can produce are a good report card of the success in the field and they show the areas to improve upon. Bank accounts are also good report cards of success and areas to improve upon. Our great hope is that all producers will get to the A+ mark in every area of farm production to keep area farms viable for many generations to come.

Tri-Basin NRD News

Monthly Temperature and Precipitation Charts on TBNRD Website:

While you might be watching the weather on a daily basis to find out whether to irrigate or to calculate your growing degree days, you may also be interested in weather data and how monthly data compares to monthly averages. Our staff keeps track of daily temperatures and precipitation for Holdrege and compiles the data into charts that compare monthly totals to the average for Holdrege (see sample chart below). This information is updated on our website monthly and can be found at *www.tribasinnrd.org* under Programs & Services, then Holdrege Monthly Weather Data.



Nebraska Extension Extras

Soybean Management Field Day – Kenesaw – Aug. 7:

The 20th Annual Nebraska Extension Soybean Management Field Days will be Aug. 7-10, 2018. This year's theme will be "Staying Competitive in a Global Marketplace" with highlighted research to improve soybean profitability. Dean Jacobitz, UNL soybean cooperator, will share his soybean plot near Kenesaw. This free event will be featured at four Nebraska locations: Aug. 7 (Kenesaw); Aug. 8 (Albion); Aug. 9 (Hartington); and Aug. 10 (Cedar Bluff), NE.

Learn more at: *https://enre.unl.edu/soydays*

UNL West Central Water & Crops Fall Field Day – Aug. 23:

"Tackling Today's Challenges & Tomorrow's Opportunities" will be the theme for the 2018 UNL West Central Research & Extension Center Water & Crops Field Day @ North Platte. This Field Day is jointly sponsored by Nebraska Extension, Nebraska Water Balance Alliance, and the Ogallala Aquifer Project.

Topics will feature irrigation and cropping systems research, Extension specialists & educators and industry leaders. Over 35 commercial vendors will also further assist with hands-on demonstrations. UNL-TAPS technology updates, field tours and a TAPS Calcutta will also be highlighted.

This educational event will begin with registration at 8:00 – 8:30 am and includes a free sponsored lunch. However, for meal count is requested by Aug. 20. For agenda & pre-registration: *https://extension.unl.edu/statewide/westcentral/wc-water-crops-field-day/*

UNL Crop Variety & Hybrids Performance Tests Available:

The 2018 Nebraska Extension Winter Wheat Varieties & Hybrids Performance Results are now available online free-of-charge. Other crops tested include: corn, soybeans, sunflowers, sorghum, field peas, and other crops.

Teshome Regassa is the UNL Crops Performance Tests coordinator. Learn more at: *https://cropwatch.unl.edu/varietytest*

Summer Manure Applications:

When it comes to summer broadcast applications, beef manure provides advantages over swine manure sources. Beef manure nitrogen concentration averaged 2 pounds per ton of Ammonium Nitrogen + 22 pounds per ton of organic nitrogen. Whereas, pig finisher manure nitrogen concentration average 42 pounds per 1,000 gallon being ammonium-nitrate + 17 pounds per 1,000 gallons of organic nitrogen. Since the organic nitrogen form is more stable and less prone to vaporization, broadcast applications of beef manure without injection or incorporation are far less risky for nitrogen losses than swine manure broadcast applications.

Choice of manure species types and application timing will likely depend crop producers' long-term goals. For example, if field managers are primarily concerned about providing nutrients available for the next growing season, then swine manure may be preferred; since the ammonium-nitrate (liquid) manure will provide quicker nitrogen availability for the next growing crop(s).

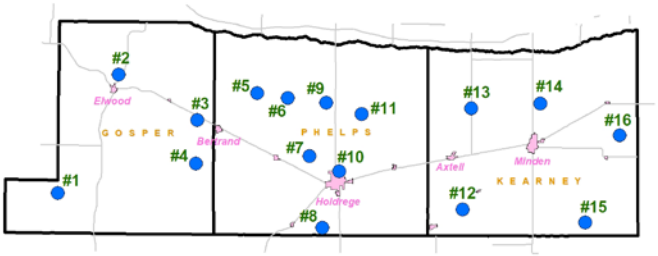
Beef (solid) manures are usually preferred if the main goal is to build organic matter. Although beef manures can also provide nutrients for the next growing crop(s), the organic nitrogen form favors soil microbial support than the swine manure which favors plant roots nutrition sources. Soil health building through manure applications can be further increased through grazing and incorporating cover crops into rotations.

NAWMN Crop ET Information

Additional Information and other ET resources can be found at websites listed under "ET Information Sites" below.

Inches of Crop Water Use (ET) = Evaporation x Kc

	July 16 – July 22		July 23 – July 29	
Site	Evaporation	Rain	Evaporation	Rain
1	1.70	2.23	1.40	2.00
2	1.40	2.08	1.30	1.00
3	1.30	1.56	0.90	1.59
4	1.80	2.16	1.20	1.12
5	1.50	0.17	1.20	1.44
6	1.30	0.32	0.90	0.87
7	1.70	0.80	1.20	1.40
8	1.55	1.93	1.15	0.76
9	1.30	0.24	1.10	0.52
10	1.40	0.30	1.10	0.50
11	1.30	0.35	1.00	0.40
12	1.70	0.95	1.20	0.78
13	1.30	0.39	1.20	1.20
14	0.90	2.41	0.80	1.36
15	1.30	2.00	1.10	0.30
16	1.40	1.15	1.20	1.38



2018 Map of NAWMN Sites across the Tri-Basin NRD.

Crop Coefficients (Kc)

Corn Stage	Kc	Soybeans Stage	Kc
2 leaf	0.10	Cotyledon (VC)	0.10
4 leaf	0.18	1st Node (V1)	0.20
6 leaf	0.35	2nd Node (V2)	0.40
8 leaf	0.51	3rd Node (V3)	0.60
10 leaf	0.69	Beg. Bloom (R1)	0.90
12 leaf	0.88	Full Bloom (R2)	1.00
14 leaf	1.01	Beg. Pod (R3)	1.10
16 leaf	1.10	Full Pod (R4)	1.10
Silk – Beg. Dent	1.10	Beg. Seed (R5)	1.10
¼ Milk Line	1.04	Full Seed (R6)	1.10
Full Dent (½ Milk)	0.98	Yellow Leaf (R6.5)	1.00
¾ Milk Line	0.79	Beg. Mat. (R7)	0.90
Black Layer	0.60	Full Mat. (R8)	0.20
Full Maturity	0.10	Mature	0.10

Crop Stage Information

Corn (R3-Milk to R4-Dough stage): Stress at milk stage, although not as severe as at silking, can still have a profound effect on yield. One can start taking advantage of subsoil moisture in the three foot zone and eventually utilizing some in the four foot zone prior to Black Layer.

Avg. daily water use from July 23 – July 29 was 0.14"-0.22".

Soybeans (R4-Full Pod to R5-Beginning Seed stage): Demand for water and nutrients is large throughout the rapid seed filling period. Environmental stress from now til shortly after R6 (Full Seed) needs to be avoided.

Avg. daily water use from July 23 – July 29 was 0.14"-0.22".

July 23-July 29 (16 of 16 NAWMN sites reporting): Average weekly rainfall was 1.04 (range 0.30 to 2.00). Average weekly ET for corn was 1.22 and for soybeans was 1.27.

ET Information Sites

NAWMN Sites:
https://www.cnppid.com/weatheret-data/nebraska-agricultural-water-management-network/
https://nawmn.unl.edu/ETdata/DataMap
CropWatch: https://cropwatch.unl.edu/gdd-etdata
CNPPID: https://www.cnppid.com/weatheret-data/
Water Use Hotline: 1-800-993-2507

Corn Stage		DESCRIPTION
R3	Milk	The kernels display a yellow color on the outside. Inner fluid is milky white. Silks are brown and dry or becoming dry.
R4	Dough	Most kernels contain a semi-solid, pasty material.
R4.7	Beg. Dent	Kernels at base of ear are beginning to dent.

Soybean Stage		DESCRIPTION
R5	Beg Seed	At least one pod containing small seeds is present at one of the four uppermost main stem nodes that have fully developed leaves. You can hold a pod up to the bright sky to see the small developing seeds in the pod cavities.
R6	Full Seed	At least one pod whose cavities are completely filled with green seeds is present at one of the four uppermost main stem nodes that have fully developed leaves.

Lake and River Levels

CNPPID Reservoir Elevation and Platte River Flow data listed below and other locations can be found on CNPPID's website at *http://cnppid.com/wp-content/uploads/2016/06/lakeRiverData.html*.

	August 2, 2018, 8:00 AM	*1 Year Ago*
Capacity of Lake McConaughy	**83.0%**	**NA**
Inflows to Lake McConaughy	**1590 cfs**	**960 cfs**
Flows on the North Platte at North Platte	**402 cfs**	**1590 cfs**
Flows on the South Platte at North Platte	**315 cfs**	**143 cfs**
Flows on the Platte at Overton	**806 cfs**	**1950 cfs**

You cannot do a kindness too soon, for you never know how soon it will be too late.

- Ralph Waldo Emerson

Websites of Interest

Soil Health: *www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/*

Climate	*agclimatenebraska.weebly.com*
NRCS Nebraska	*www.ne.nrcs.usda.gov*
Central Irrigation District	*www.cnppid.com/*
TBNRD Home Page	*www.tribasinnrd.org/*
Farm Service Agency	*www.fsa.usda.gov*
UNL Cropwatch	*cropwatch.unl.edu*
UNL Extension	*extensionpubs.unl.edu/*
K-State SDI Website	*www.ksre.ksu.edu/sdi*
No-till On The Plains	*www.notill.org*

Rainfall

Rainfall amounts listed below and other locations come from NeRAIN which can be found at website *https://nednr.nebraska.gov/NeRain/Maps/maps*.

Location:	July 19 – Aug 1	May 1 – Aug 1
Arapahoe 9.8 NNE:	**1.16**	**12.14**
Bertrand 6.1 mi. SE:	**0.99**	**14.61**
Funk 4.1 mi. NNE:	**0.57**	**11.22**
Minden 0.855 mi. W:	**1.65**	**11.39**
Minden 8.8 mi. ESE:	**3.21**	**11.30**

Average Rain for May–July in Holdrege = 11.32 Inches

****** If you wish to receive this newsletter via e-mail, or have any questions, comments or ideas, feel free to contact Curtis Scheele at the NRCS office in Holdrege or you can email him at curtis.scheele@ne.usda.gov. ******

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308-995-6121, Ext. 3

309 Smith Street
PO Box 41
Elwood, NE 68937-0041
308-785-3307, Ext. 3

1005 South Brown Street
Minden, NE 68959-2601
308-832-1895, Ext. 3

Central Nebraska Public Power & Irrigation District

415 Lincoln Street
PO Box 740
Holdrege, NE 68949
308-995-8601

Tri-Basin Natural Resources District

1723 Burlington Street
Holdrege, NE 68949
308-955-6688

Nebraska Extension

1308 2nd Street
Holdrege, NE 68949

308-995-4222

PO Box 146
Elwood, NE 68937

308-785-2390

424 North Colorado
PO Box 31
Minden, NE 68959
308-832-0645

Controlling Ephemeral Gully Erosion on Highly Erodible Land.

Nebraska Agronomy Technical Note NE-111

NRCS Natural Resources Conservation Service

February 2012

What is Ephemeral Erosion?

Simply defined ephemeral means seasonal or temporary. Ephemeral gully erosion is so named because it tends to occur at the same point on the landscape year after year and is obliterated by annual tillage operations only to re-occur following subsequent rainfall events. Ephemeral gully erosion can also occur in fields where no-till is being practiced due to large drainage areas, excessive slopes, poor crop production resulting in low residue levels and/or poor soil quality. Ephemeral gully erosion characteristics and prediction methods are described in the Field Office Technical Guide (FOTG) Section I, Subsection D-2 Water Erosion.

The Highly Erodible Land Conservation Compliance (HELC) provisions of the Food Security Act of 1985, as amended, require that ephemeral gully erosion be controlled on all highly erodible land used for the production of a commodity crop (NFSAM Sec. 512.0 C).

Typical Ephemeral Gully

Concentrated Flow areas

Concentrated flow areas may require treatment to control gully erosion. This is especially true if they have been de-vegetated due to land shaping or farming operations, or if the existing vegetation or residue cover is not adequate to prevent gullying. In all cases where concentrated flow areas are present, it is advisable during the conservation planning process to conduct a field visit in order to determine actual site conditions including channel slope, cross-section (channel capacity) and drainage area in order to complete the erosion analysis using either the Ephemeral Gully Erosion Prediction Worksheet or the Ephemeral Gully Erosion Look-up Tables which are found in Section IV of the FOTG. Small capacity channels (less than 20 ft top width at one foot of flow depth) are especially vulnerable to gully erosion. Results from the Look-up Tables indicate that gully erosion is likely if drainage areas are greater than 2-5 acres in size using conventional or mulch tillage. Implementing a high residue, continuous no-till system will increase the drainage area tolerance to 8-12 acres depending on your location in the state.

If field measurements are not available, the maximum allowable drainage area based on an average of residue and tillage management systems for steep, small capacity channels are:

- Eastern NE: 5 acres
- Central NE 5 acres
- Western NE 7 acres

For any ephemeral channel with drainage area exceeding these values, one or more treatment options to control ephemeral gully erosion must be included in the conservation plan.

Treatment Options

There are several treatment options for controlling ephemeral gully erosion ranging from implementing a continuous no-till system to structural practices such as terraces and waterways. The practices are listed on the back of Nebraska Conservation Planning Sheet 18 and include:

- Cover crops
- Grass Waterways
- Water & Sediment Control Basins
- Terraces
- Diversions
- Contour Buffer Strips

Concentrated flow area treated with a fall seeded cover crop.

Cover Crops

The preferred cover crop for both concentrated flow areas and critical overland flow areas requiring treatment is fall-seeded cereal rye. Annual ryegrass has also been used, but some varieties have proven to be glyphosate resistant. . Small grain should be seeded at a rate of 1 bu/ac drilled or 2 bu/ac broadcast no later than September 15 in Vegetative Zones I & II and October 15 in Vegetative Zones III & IV (Refer to the Nebraska Vegetative Zones Map located in Section I of the FOTG). If spring cover seeding is required, oats may be used at the same rate and should be planted as soon as possible following the earthwork, but generally not earlier than March 15.

Cover crops may be chemically destroyed (glyphosate) when they have produced adequate growth to stabilize critical areas (6 -8 inches is minimal; 12+ inches is optimal). In some cases, it will be necessary to apply the chemical after the spring crop has been planted. Appropriate crop varieties need to be selected to allow for this scenario.

Cover crops are strongly encouraged as part of any crop rotation containing low or fragile residue producing crops such as soybeans to provide additional stability to concentrated flow areas and prevent the necessity of damage repair or maintenance.

Channel Shaping

Channel shaping to produce a broad, shallow flow condition will reduce the potential for ephemeral erosion. Care should be taken during channel shaping operations to retain as much top soil as possible and to minimize fill placement in concentrated flow areas as un-compacted fill will tend to be unstable. Retaining native perennial vegetation or establishing and maintaining grassed waterways in concentrated flow areas is preferable to cropping them for the sake of channel stability; when de-vegetation of concentrated flow areas is necessary, as for channel shaping, a close seeded small grain cover crop should be seeded immediately following earthwork activity. Mulching would be another option.

Maintenance

Annual inspection and maintenance of concentrated flow areas is important.

Where erosion has occurred to the extent that it will hinder planting of the next crop, maintenance should be completed immediately after harvest. This should be done with minimal tillage operations no deeper than the erosion which has occurred and no wider than necessary to make planting possible followed immediately by drilling a cover crop (as described above).

Use of a blade with rubber-tire compaction to shape eroded areas is the preferred method to accomplish repair of damage.

If erosion damage is occurring even as the result of normal rainfall events of 2 – 4 inches, additional conservation treatment is required in order to satisfy the HELC requirements.

Planning Documentation

Planning documentation should include the following:

☐ RUSLE2 documentation of soil loss, STIR and SCI

☐ Conservation plan map with critical areas identified

☐ Conservation plan and/or Planning Sheet 18

☐ Results of ephemeral gully analysis

☐ Design and installation requirements for structural practices

☐ Practice operation and maintenance requirements

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Treatment of Ephemeral Gullies with Perennial Grass

Nebraska NRCS Information Sheet

The Good! **The Bad!** **The Ugly!**



How can perennial grass help control ephemeral gullies?

Ephemeral gullies are small ditches that form in fields. They most commonly occur in draws between hills, and other low-lying areas on slopes where water concentrates as it runs off the field. As the volume of water runoff increases, no-till farming and cover crops may be insufficient to control ephemeral gullies. A permanent grass strip may be needed to protect the soil. Grass helps to slow the runoff water down and keeps the soil covered and in place, preventing erosion and gullies. Untreated ephemeral erosion will likely result in larger gullies. Disking or tillage of ephemeral gullies is NOT a form of treatment. In fact, tilling these areas will loosen the soil and make the problem worse.

Where to get help

NRCS can provide technical assistance in the planning, design, and application of treatment for your erosion issue(s). Contact your local NRCS Office to schedule a time to discuss your conservation goals and objectives.

The *Do It Yourselfers* (DIY)

For the DIY'ers, NRCS offers the following items for consideration as you plan and implement your ephemeral gully treatment:

Inventory and Evaluation

To be successful, you must know what is happening on your field. Is it practical to plant grass in erosion-prone areas? How big of an area needs to be planted? What is the contributing drainage area, the slope of the affected area, the soils, the need for mechanical shaping of the site before it can be seeded, wetland impacts, endangered species impacts, and cultural resources impacts.

Perennial Grass extents

The grass cover should begin upstream of the point where runoff water merges into a concentrated flow path, but at a minimum, start upstream of any ephemeral gully formation. The grass cover should extend downhill to a point where runoff water can be released at a place where soil erosion will no longer occur. This could be within the field or at a field's edge.

Width and Depth

The following width and depth guidance is applicable for ephemeral gully areas with 30 acres or less of drainage area. For sites with more than 30 acres of drainage, contact NRCS for guidance.

Depending upon the shape and condition of the site, plan the grass cover to span the natural valley width (but not less than 30 feet top width); and to a depth that is at least 1.2 feet deep. While dimensions are important, establishing and maintaining a healthy grass cover generally determines the success or failure of ephemeral gully treatment.

Grading and Shaping

Grade and shape the proposed grassed area as necessary to achieve a uniform parabolic or trapezoidal shape. Ensure your construction depth is adequate to direct runoff into the grassed area as a natural "grass lip" will be present after grass establishment. Proper depth can reduce the unintended consequences of runoff water flowing alongside (and eroding) the grassed area verses within the intended grassed area.

Avoid grading and shaping when site conditions are frozen, muddy, droughty, etc. If grading and shaping necessitates the placement of earth fill, do so in layers of nine inches or less, with each layer compacted by the wheels and/or tracks of the construction equipment. Spread or dispose of excess excavated material so it will not interfere with the proper function of the vegetated area.

If infertile subsoil will be exposed by grading and shaping operations, strip and stockpile topsoil. When grading and shaping is complete, spread the topsoil over the exposed infertile soil. The final product should be reasonably smooth, free of rills and gullies, and ready for seeding.

Seeding and Fertilizing

After shaping and smoothing, it is important to get the protective vegetal cover established before heavy rains form new rills or gullies.

A firm seedbed will increase the chance of a good grass stand. Before you plant, be sure the seedbed is firm. A good way to check is to step on the seedbed. If your footprint is less than ½ inch deep, the seedbed is adequate. You may need to use a roller or cultipacker to get a firm seedbed.

Common seeding recommendations for grassed areas in eastern Nebraska are 10 PLS lbs./ac of brome and 4 lbs./ac of switchgrass. In western Nebraska, plant 7 PLS lbs./ac of brome, 10 PLS lbs./ac intermediate wheatgrass and 2 lbs./ac of switchgrass. It is recommended the grass be drilled. If broadcasting the seed, double the seeding rates. Seed the grass between March 1st to April 15th. If there is at least two inches of topsoil, no fertilizer is needed. Otherwise, soil test and apply according to the test. Do not apply nitrogen fertilizer at seeding – this will only stimulate weeds.

When establishing new seedings, it is recommended, to include mulching, companion crops, fabric checks, side dikes, or any combination of these options. In eastern Nebraska, add a ½ bushel of oats to the seed as a companion crop when drilling. In western Nebraska, add 2-3 lbs./ac of perennial ryegrass as a companion crop when drilling.

Water from neighboring property

If runoff water from a neighboring property has already concentrated into a ditch via a natural flow path or via a culvert, prior to entering your property, additional measures may be needed to ensure success of your grass seeding. Measures may include but are not limited to: 1) installing an underground outlet pipe; 2) placement of rock or broken concrete; 3) mulch blankets; 4) other.

For settings and or situations described in the paragraph above, it is recommended you seek the guidance of a NRCS Technical Specialist to determine what alternative measure(s) may best address the particular situation at hand.

Maintaining the practice

The following tips will help ensure longevity of the perennial grass treatment area:

Do not plant "end rows" or plant parallel to the flow path. Planting perpendicular to the flow path ensures runoff water is directed into the grassed area.

Maintain the width of the grass area when tilling and planting. Lift implements out of the ground before crossing the grassed area.

If you must till, avoid creating a lip or berm at the edge of the grassed area which could hinder runoff water from flowing into the grassed area

Fertilize periodically.

Repair rills or gullies by reshaping and reseeding.

Do not let herbicide spray continue into the grassed area.

Mow as needed to maintain flow capacity, but do not mow until a healthy grass cover is established.

Maintain outlets to prevent the formation of new gullies. This may include reshaping and reseeding the outlet, or repairing or replacing components of structural outlets.