FARM Assistance Focus

TEXAS A&M AGRILIFE EXTENSION

After the Conservation Reserve Program: Economic Decisions with Farming and Grazing in Mind

DeDe Jones
Department of Agricultural Economics,
Texas AgriLife Extension Service
Texas A&M University System
farmassistance.tamu.edu

Tracy Fischbacher
Conservation Agronomist,
Natural Resources Conservation Service

Farm Assistance Focus 2018-3
August 2018

FARM Assistance
Planning Solutions

Now that CRP contracts are beginning to expire, landowners must decide if they should re-enroll their acreage in the conservation program, convert it back to farmland, or leave it in permanent cover for wildlife and/or grazing.

Since the Conservation Reserve Program (CRP) began in 1985, several million acres of former cropland have been planted with native and introduced grasses. CRP helps protect topsoil by taking highly erodible land out of crop production and establishing permanent vegetative cover in its place. This process not only helps reduce erosion, but also increases wildlife populations. Now that CRP contracts are beginning to expire, landowners must decide if they should re-enroll their acreage in the conservation program, convert it back to farmland, or leave it in permanent cover for wildlife and/or grazing.

Land placed under the CRP tends to be highly susceptible to erosion and possess relatively low fertility, making program re-enrollment an attractive option. However, in the 2014 Farm Bill, the maximum allowable CRP acreage was gradually reduced from 32 to 24 million acres over five years. As a result, landowners with expired contracts may find it difficult to re-qualify for program eligibility. Faced with this situation, many producers are choosing to return their grass acres to crop production.

Growers who elect to put CRP acreage back into production should consider factors such as chemical applications, crop selection, and tillage options. Crops raised on converted CRP land are usually farmed dryland due to lack of water or irrigation equipment, which means available soil moisture is a major consideration in determining what to plant. The amount of soil moisture at the time of conversion determines which crops to produce and the length of fallow necessary to rebuild soil moisture after grass kill-off. Wheat and grain sorghum fit well into dryland rotation programs and are often grown on former CRP land. Dryland cotton is also an option, depending on the farm's location and current mode of operation. Producers should expect lower yields in the first year of production after the CRP, but this situation depends on such factors as the amount of rainfall and existing soil moisture levels.

When preparing for crop production, producers should evaluate available soil nutrients, and factor in the rates and prices of nitrogen and phosphorous applications during the conversion process. Chemical rates and applications will depend on the amount of tillage used, which can range from reduced tillage to complete clean tillage. Landowners must also decide how much to plant, since converting all CRP acres to crop production may not be feasible. They should consider leaving a wide, grass buffer strip around playa lakes or along and within drainages to help prevent erosion of topsoil and leaching of chemicals and fertilizer into water sources.

Conversion to Cropland

If the decision to convert CRP land back to crop production is made with the intention of planting a fall crop, the conversion process can begin no sooner than 90 days prior to expiration, usually July 2. If instead a summer row crop is planted after the contract expires, the conversion process can begin when the contract ends. Producers should consult a local Natural Resources Conservation Service (NRCS) field office to determine the exact time to begin conversion. The agency's web address is http://www.nrcs.usda.gov.

The first step in the conversion process is clearing old grass residue. Finish any necessary grass mowing, baling, or burning before the first herbicide application. Complete this initial forage removal at least 6 to 8 weeks before the first chemical application in July when grass is already growing, making the herbicide more effective. Removing forage and dead grass also allows chemicals to easily reach new plant growth for a faster and more complete root kill. Mowing alone only shreds the plant matter and leaves excess surface material that prevents chemicals from reaching the new growth. Mowing followed by tilling can incorporate residue into the soil to help rebuild organic matter levels. Any remaining old grass production can be removed by baling it. However, keep in mind this grass is less nutritious than younger, more actively growing grasses; hay produced from baling the deteriorated forage may be best used as roughage.

Burning, one of the most attractive options for clearing grass residue, is relatively inexpensive, removes a large portion of dead grass material, and helps stimulate regrowth, causing favorable conditions for effective herbicide control. However, use caution when burning, especially in the Texas Panhandle, where winds are high,

"Use Caution when burning old grass residue, especially in the Texas Panhandle, where winds are high, humidity is low, and conditions are dry."

humidity is low, and conditions in late winter are dry. Burn only under proper conditions after adequate preparation. It may also be beneficial to employ the assistance of experienced, trained personnel. Contact a prescribed burn association such as the Texas Panhandle Prescribed Burn Association (http://www.ranches.org/tppba.htm) or others listed with the Prescribed Burn Alliance of Texas (http:// pbatexas.org) for additional resources and information.

After clearing old grass residue, the next step in the conversion process is grass kill-off and soil preparation through tillage and herbicides. The amount of tillage varies for each farm. Reduced tillage uses chisels, disks, or sweeps along with herbicides to kill existing grasses and to minimally till the soil during the conversion process. This process leaves more surface residue than clean tillage and helps reduce soil moisture loss from evaporation. The reduced-till option also improves seedbed quality compared to no-tillage.

The clean-tillage option, which involves more operations and trips across the land than reduced-till, is used to control grass and to prepare the soil for planting quickly and effectively. However, the clean-till process also involves an increase in labor and machinery expenses caused by a greater number of trips across the field. Multiple tillage operations also leave very little crop residue on the surface, exposing the land to wind and water erosion, and lose a greater amount of stored soil moisture to evaporation.

No-tillage is usually not effective in the conversion process because the soil compaction of CRP acreage is often too great for a satisfactory seedbed, and the land surface may be too rough. Because grass tends to grow in clumps, most CRP fields are extremely uneven; using a disk plow followed by a chisel and sweep plow can help level the surface. No-till can be a successful farming practice after conversion is completed.

Wheat

A landowner who has decided to plant dryland wheat should begin the conversion process by clearing old grass residue. Once the initial burning is completed in the spring, give the grass time to grow before applying herbicide. In July, apply 1.5 pounds of Acid Equivalent (AE) per acre of glyphosate (Roundup). All herbicide applications include a water conditioner such as ammonium sulfate in the tank mixture, which costs an additional $1 per acre. A custom application rate of $6 per acre is also included in each herbicide application, (Table 1). The next step is disk plowing in August, followed by chisel plowing in September, and sweep plowing in October. Depending on the amount of rainfall in late summer and early fall, dryland wheat may not be the best first grain crop to produce. If conditions are dry, the land should remain fallow through the winter to build up soil moisture before planting a summer row crop.

If enough moisture is available for wheat production, apply a phosphorous rate of 30 pounds of 10-

Table 1. Estimated Costs of Converting CRP to Wheat, Dryland, Reduced-Tillage
2018 projected Costs Per Acre; Texas Panhandle Area

Date	Item		Unit	Price	Quantity	Amount
	Direct Expenses of Conversion					
April	controlled burn	burn	acre	$10.00	1.00	$10.00
July	herbicide	herbicide and application	acre	$13.25	1.00	$13.25
August	disk	disk	acre	$13.00	1.00	$13.00
September	chisel	chisel	acre	$14.00	1.00	$14.00
October	sweep	sweep	acre	$13.50	1.00	$13.50
October	soil test	sample	acre	$1.05	1.00	$1.05
October	fertilizer	fertilizer (P) 10-34-0	lb	$0.61	30.00	$18.30
October	fertilizer	fertilizer (N) 32-0-0	lb	$0.38	40.00	$15.20
October	fertilizer	fertilizer application	acre	$6.00	1.00	$6.00
					Total Direct Expenses	**$104.30**

"Converting CRP land to grazing involves some of the same processes as conversion to cropland, with a few additional steps."

34-0 along with 40 pounds of nitrogen (32-0-0). Use a knife and coulter application rig to inject fertilizer into the soil without disturbing any surface residue. Estimated application cost is $6 per acre. A soil fertility test can determine the exact amount of fertilizer needed in a particular location. One composite sample for every 10 to 40 acres is appropriate and costs $17 per sample, which equates to a soil test expense between $0.40 and $1.70 per acre($1.05 per acre average). More information on soil sampling is available at the Texas A&M University Soil, Water, and Forage Testing Laboratory (http://soiltesting. tamu.edu). Expect lower yields the first year of grain production, especially if conditions are dry.

Grain Sorghum

The conversion of CRP to dryland grain sorghum, (Table 2) is similar to dryland wheat. Follow the same schedules of July herbicide application and fall tillage. The difference is that when planting grain sorghum, leave the ground fallow through the winter to allow winter precipitation to build up soil moisture. Sweep plow in the spring, and depending on the amount of rainfall and the emergence of weeds and grasses, apply 1 quart of glyphosate and 1.5 pints of metolachlor in June before planting. Metolachlor is a pre-emergence herbicide that prevents grasses and small-seeded weeds from sprouting. Use metolachlor only with Concep safened grain sorghum seed.

Before planting, apply a fertilizer of 60 pounds nitrogen (32-0-0) and 40 pounds phosphorous (10-34-0) with a knife and coulter rig. Also, conduct a soil fertility test for approximately $1.05 per acre.

Table 2. Estimated Costs of Converting CRP to Grain Sorghum, Dryland, Reduced-Tillage
2018 Projected Costs Per Acre; Texas Panhandle Area

Date	Item		Unit	Price	Quantity	Amount
	Direct Expenses of Conversion					
April	controlled burn	burn	acre	$10.00	1.00	$10.00
July	herbicide	herbicide and application	acre	$13.25	1.00	$13.25
August	disk	disk	acre	$13.00	1.00	$13.00
September	chisel	chisel	acre	$14.00	1.00	$14.00
October	sweep	sweep	acre	$13.50	1.00	$13.50
April	sweep	sweep	acre	$13.50	1.00	$13.50
May	soil test	sample	acre	$1.05	1.00	$1.05
June	herbicide	herbicide and application	acre	$21.00	1.00	$21.00
June	fertilizer	fertilizer (P) 10-34-0	lb	$0.61	40.00	$24.40
June	fertilizer	fertilizer (N) 32-0-0	lb	$0.38	60.00	$22.80
June	fertilizer	fertilizer application	acre	$6.00	1.00	$6.00
					Total Direct Expenses	**$152.50**

Conversion to Cattle Grazing

In some instances, former CRP land is used for grazing instead of crop production. Depending on existing grass cover, the conversion to grazing involves some of the same processes as conversion to cropland, with a few additional steps. First, remove deteriorated, low-value forage to stimulate new growth and improve pasture quality. Options for clearing the old grass residue include mowing, baling, and burning, with burning considered the most cost-effective at around $10 per acre. Next, consider fertilization to stimulate new grass growth and speed the conversion

Often, CRP land has inadequate livestock watering capabilities, so drilling a well and installing a windmill or solar submersible pump is necessary.

process. Apply a rate of 40 pounds of nitrogen with a knife and coulter rig following the initial burn down, ideally in early spring, before green up (Table 3). After spreading the fertilizer, let the grasses gain 6 to 8 inches of regrowth before allowing grazing. Appropriate stocking rates will vary for each operation, depending on existing grasses. The type of pasture forage can be monitored over time; augmenting monocultures of introduced grasses with native grass species may be necessary to maximize production with minimal expense.

Table 3. Estimated Costs of Converting CRP to Pasture, Dryland, Cattle Grazing 2018 Projected Costs Per Acre; Texas Panhandle Area

Date	Item		Unit	Price	Quantity	Amount
	Direct expenses of conversion					
April	controlled burn	burn	acre	$10.00	1	$10.00
May	soil test	sample	acre	$1.05	1	$1.05
June	fertilizer	fertilizer (N) 32-0-0	lb	$0.38	40	$15.20
June	fertilizer	fertilizer application	acre	$6.00	1	$6.00
					Total Direct Expenses	**$32.26**

Table 4. Estimated Fencing Costs for Electric and Permanent Fencing

5-Strand, 1-Mile Barbed Wire			
	Quantity	Price per unit	Total
5-strand barbed wire	1	$10,500	$10,500
		Total Cost/Mile	**$10,500**
		Total Cost/Acre	**$65.63**
1-Strand, 1-Mile Electric			
	Quantity	Price per unit	Total
Rebar posts	264	$1.50	$396.00
Wire (1 mile)	1	$180.00	$180.00
Insulators	264	$0.26	$68.64
Solar panel	1	$200.00	$200.00
Charger	1	$130.00	$130.00
		Total Cost/Mile	**$974.64**
		Total Cost/Acre	**$6.10**
2-Strand, 1-Mile Electric			
	Quantity	Price per unit	Total
Rebar posts	264	$1.50	$396.00
Wire (1 mile)	2	$180.00	$360.00
Insulators	528	$0.26	$137.28
Solar panel	1	$200.00	$200.00
Charger	1	$130.00	$130.00
		Total Cost/Mile	**$1,223.28**
		Total Cost/Acre	**$7.65**

Fencing must be in place and water wells drilled before grazing can begin. Many CRP fields do not have fences or have inadequate ones for containing livestock. Fencing can be barbed wire, electric, or a combination of the two. A five-strand barbed wire fence, including corners and gates, costs between $10,000 and $11,000 per mile and has a useful life of approximately 35 years. On a section of land, barbed wire fencing the entire perimeter is estimated at $65 per acre (Table 4). The cost of electric fencing is around $975 per mile for a one-strand electric wire and $1,223 for a two-strand electric wire with an estimated life of 5 years. Per acre expenses for one and two strand electric fencing runs between $6.00 and $8.00 per acre.

Often, CRP land has inadequate livestock watering capabilities, so drilling a well and installing a windmill or solar submersible pump is necessary. The durability and reliability of solar pumps in recent years has made them the more cost-effective option in most instances. Drilling expenses depend on well depth and output desired. Estimated costs in Table 5 are based on 5-inch PVC casing and includes drilling, casing, capping, applying gravel, packing, and digging a slush pit. Expenses associated with the solar submersible system at various depths include solar panels, pump, pipe, platform, wiring, control box, and installation. Submersible pumps usually last about 10 years, and solar panels 40-plus years with minimal maintenance and repair expenditures.

Different grazing strategies will have varying water requirements. Four gallons per minute is recommended on a section (640 acres), assuming a grazing intensity of 8

Before making any decisions, a producer should analyze the situation completely, focusing on his or her individual operation and figuring the numbers accordingly.

acres per animal unit, or the equivalent of a 1,000-pound cow with calf. On average, cattle require around 15 gallons of water each day, depending on weather conditions, body size, physical characteristics, and gender. Along with a functioning water source, water storage is also required. NRCS recommends at least a 4-day water storage capacity for systems supplied by electric pumps or 7 days if the system is supplied by a solar pump. Steel stock tanks and earthen tanks are popular storage methods. A steel tank that holds 1,100 gallons costs about $450.

Table 5. Estimated Well and Solar Submersible Costs for Various Well Depths

Well		Solar	
Depth (ft.)	Cost	Cost	System Cost
250	$5,625	$7,900	$13,525
350	$7,875	$8,500	$16,375
450	$10,125	$10,000	$20,125
550	$12,375	$11,300	$23,676

Conclusion and Summary

When choosing to convert former CRP land to cropland or grazing, a landowner faces several decisions. Costs can run between $100 and $125 per acre, depending on the amount of tillage and chemicals applied to convert CRP land to dryland wheat production. The cost for converting CRP land to dryland grain sorghum should range between $150 and $175 per acre.

Converting to livestock grazing costs approximately $30 to $50 per acre using burning and fertilization. In addition, fencing and the development of a water source may be needed. Expect to pay around $975 per mile for one-strand electric fencing and $1,223 per mile for two-strand electric fencing. Barbed wire fencing will cost approximately $10,500 per mile, including gates and corner posts. A well with a solar submersible pump ranges between $13,525 and $23,676, depending on the depth required.

Before making any decisions, a producer should analyze the situation completely, focusing on his or her individual operation and figuring the numbers accordingly. Local Natural Resources Conservation Service field offices can aid in understanding the issues of conversion and offer insight into any financial cost-share programs available to help offset expenses.

References

Bean, Brent. 1997. Returning CRP Land to Crop Production. The Texas AgriLife Extension Service. Texas AgriLife Research and Extension Center at Amarillo.

Joyce, Matt. 2010. Solar-Powered Wells Displace Windmills on Western Range. Retrieved from http://www.nbcnews.com/id/38242500/ns/us_news-environment/t/solar-powered-wells-displace-windmills-western-range/#.WzvCvNVKjb0

McCollum III, Ted. 1997. Cattle Grazing on Land Formerly Enrolled in the CRP Program. The Texas AgriLife Extension Service. Texas A&M AgriLife Research and Extension Center at Amarillo.

More Changes Coming in the Conservation Reserve Program. Retrieved from https://www.agupdate.com/farmandranchguide/news/state-and-regional/more-changes-coming-in-the-conservation-reserve-program/article_5a6e06dc-4e1c-11e8-a5d3-472c50e6870b.html

2016 Custom Rate Statistics. Retrieved from https://agecoext.tamu.edu/wp-content/uploads/2013/07/TxCustomRateSurveyMay2016.pdf

2018 Texas Panhandle Crop Budgets. Retrieved from https://agecoext.tamu.edu/resources/crop-livestock-budgets/budgets-by-extension-district/district-1-panhandle/2018-district-1-texas-crop-and-livestock-budgets/

Produced by FARM Assistance, Texas A&M AgriLife Extension Service, Visit Texas AgriLife Extension Service at: http://texasagrilife.tamu.edu Education programs conducted by The Texas AgriLife Extension Service serve people of all ages regardless of socioeconomic level, race, color, sex, religion, handicap or national origin.