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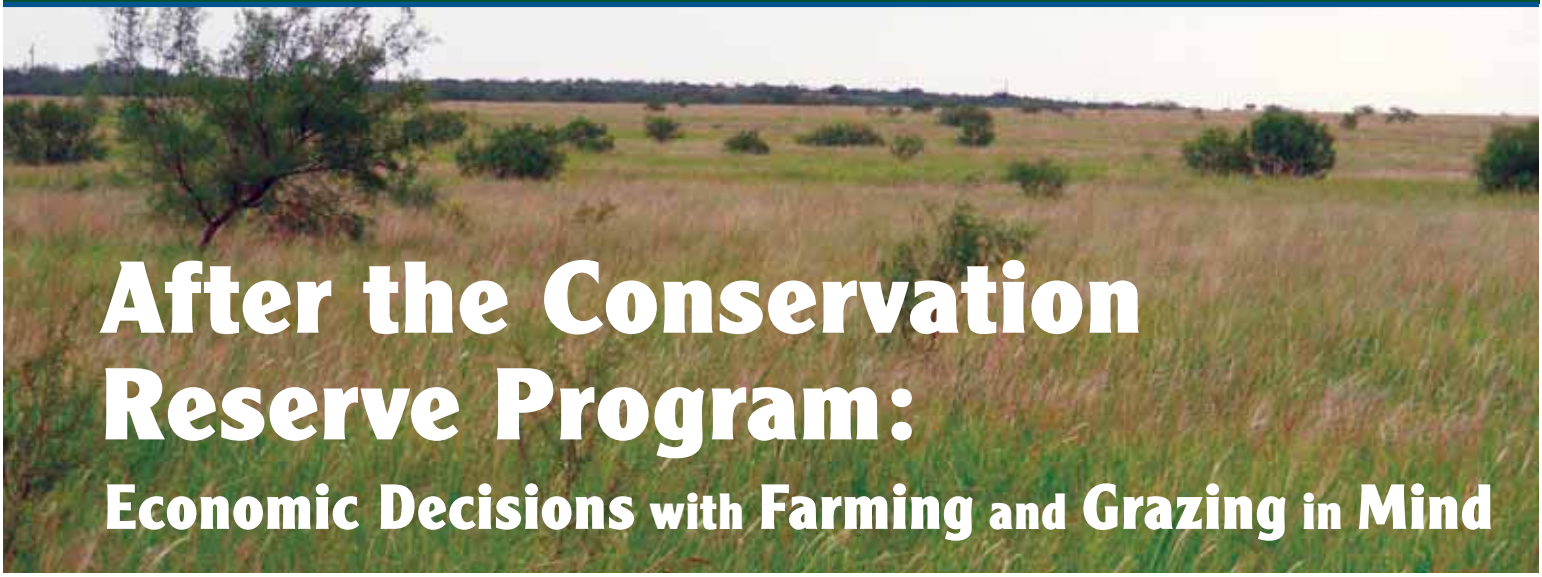

After the Conservation Reserve Program:

Economic Decisions with Farming and Grazing in Mind

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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, however, landowners must decide if the land should be re-enrolled in the conservation program, converted back to farmland, or left in permanent cover for wildlife and/or grazing.

Land placed under the CRP tends to be highly susceptible to erosion, and possesses relatively low fertility. However, increased corn, soybean, wheat, and cotton prices over the 2007 and 2008 growing seasons may encourage land owners to consider returning these grass acres to crop production.

When contemplating whether to convert CRP land back into crop production, consider factors such as tillage options, chemical applications, and crop selection. Crops raised on converted CRP land usually are farmed dryland due to lack of water or irrigation equipment, which means soil moisture is a major consideration in determining crop production. The amount of soil moisture at the time of conversion determines which crops will be planted and the length of fallow necessary to rebuild soil moisture after the grass kill-off. Dryland wheat and dryland grain sorghum often are grown on converted CRP land. These two crops fit well into dryland crop rotation programs. Dryland cotton also can be considered, depending on the farm's location and current operation. Producers should expect lower yields in the first year of crop production after the CRP, depending on such factors as the amount of rainfall and existing soil moisture levels.

The limited amount of nutrients available also should be considered when preparing for crop production. Factor in the rates and prices of nitrogen and phosphorous applications during the conversion process before the crop is planted.

Tillage options range from reduced tillage to complete clean tillage. Chemical rates and applications will depend on the amount of tillage used.

When contemplating the conversion process, the landowner must decide which acres to plant. Converting all the CRP acres to crop production may not be feasible.

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

Once the decision to convert CRP land back to crop production has been made and a fall crop is to be planted, the conversion process can begin no sooner than 90 days prior to expiration, usually July 1. If a summer row crop is planted following contract expiration, the conversion process can begin as early as contract expiration. Consult a local National Resources Conservation Service field office to determine the exact time conversion may begin. The agency's Web address is http://www.nrcs.usda.gov.

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

Burning, one of the best options for clearing grass residue, is relatively inexpensive, removes a large portion of dead grass material, and helps stimulate re-growth, causing favorable conditions for effective herbicide control. However, use caution when burning, especially in the Texas Panhandle, where winds are high, humidity is low, and conditions in late winter are dry. Burning should be undertaken only under proper conditions and by experienced and trained personnel with adequate preparation. Contact a prescribed burn association such as the Texas Panhandle Prescribed Burn Association (http://www.ranches.org/tppba.htm) or the Edwards Plateau Prescribed Burning Association (http://www.ranchmanagement.org/eppba).

After old grass is cleared, the next step in the conversion process is grass kill-off and soil preparation through tillage and herbicides. The amount of tillage used will vary 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 the quality of the seedbed 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 quickly and effectively prepare the soil for planting. However, the clean-till process also involves an increase in labor and machinery expenses caused by the increased number of trips across the land. Multiple tillage operations also leave very little crop residue on the surface, exposing the land to wind and water erosion, and a greater amount of stored soil moisture is lost to evaporation.

No-tillage is not very effective in the conversion process because the soil compaction of the CRP land may be too great for a satisfactory seedbed, and the land surface may be too rough. Because grass tends to grow in clumps, most CRP land is extremely rough; the use of 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 herbicide is applied. In July, two quarts of glyphosate (Roundup) are applied. 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 $4.50 per acre also is included in each herbicide application, as shown in 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 a summer row crop is planted.

Table 1. Estimated costs of converting CRP to wheat, dryland, reduced-tillage
2008 projected costs per acre; Texas Panhandle area

Date	Item		Unit	Price	Quantity	Amount
	Direct expenses of conversion					
April	controlled burn	burn	acre	$4.50	1.00	$4.50
July	herbicide	herb. and appl. wheat	acre	$20.50	1.00	$20.50
August	disk	disk	acre	$10.30	1.00	$10.30
September	chisel	chisel	acre	$13.80	1.00	$13.80
October	sweep	sweep	acre	$13.00	1.00	$13.00
October	soil test	sample	acre	$0.25	1.00	$0.25
October	fertilizer	fert (P) 10-34-0	lb	$1.26	30.00	$37.80
October	fertilizer	fert (N) 32-0-0	lb	$0.71	40.00	$28.40
October	fertilizer	fert appl.	acre	$12.00	1.00	$12.00
				Total direct expenses		**$140.55**

If enough moisture is available for wheat production, a phosphorous rate of 30 pounds of 10-34-0 should be applied along with 40 pounds of nitrogen (32-0-0). Use a knife and coulter application rig to inject the fertilizer into the soil without disturbing any surface residue. Estimated application cost is $12 per acre. The exact amount of fertilizer needed in a particular locale will be based on a soil fertility test. One composite sample for every 10 to 40 acres is appropriate and costs $10 per sample, so soil tests cost between $0.25 and $1.00 per acre. More information on soil sampling can be found 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, as shown in Table 2, is similar to that of dryland wheat. The same schedules of July herbicide application and fall tillages are followed. The difference is that when planting grain sorghum, the ground is left fallow through the winter to allow winter precipitation to build up soil moisture. A sweep plowing is done in the spring, depending on the emergence of weeds and grasses. Depending on the amount of rainfall and the emergence of weeds and grasses, 1 quart of glyphosate and 1.5 pints of metolachlor are applied in June before planting. Metolachlor is a pre-emergence herbicide that prevents

Table 2. Estimated costs of converting CRP to grain sorghum, dryland, reduced-tillage
2008 projected costs per acre; Texas Panhandle area

Date	Item		Unit	Price	Quantity	Amount
	Direct expenses of conversion					
April	controlled burn	burn	acre	$4.50	1.00	$4.50
July	herbicide	herb. and appl. milo	acre	$20.50	1.00	$20.50
August	disk	disk	acre	$10.30	1.00	$10.30
September	chisel	chisel	acre	$13.80	1.00	$13.80
October	sweep	sweep	acre	$13.00	1.00	$13.00
April	sweep	sweep	acre	$13.00	1.00	$13.00
May	soil test	sample	acre	$0.25	1.00	$0.25
June	herbicide	herb. and appl.	acre	$21.50	1.00	$21.50
June	fertilizer	fert (P) 10-34-0	lb	$1.26	40.00	$50.40
June	fertilizer	fert (N) 32-0-0	lb	$0.71	60.00	$42.60
June	fertilizer	fert appl.	acre	$12.00	1.00	$12.00
				Total direct expenses		**$201.85**

grasses and small-seeded weeds from sprouting. The chemical metolachlor can be used only with Concep safened grain sorghum seed. Before planting, a fertilizer of 60 pounds nitrogen (32-0-0) and 40 pounds phosphorous (10-34-0) is applied with the knife and coulter rig. A soil fertility test also is conducted for $0.25 per acre.

Conversion to Cattle Grazing

In some instances, former CRP land may be 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.

Remove decadent, low value forage to stimulate new growth and improve forage quality. Options for removing the old grass growth include mowing, baling, and burning, with burning considered the most cost-effective.

Fertilization may stimulate new grass growth and speed the conversion process. A soil fertility test will determine the amount and type of fertilizer needed. Fertilizer should be applied after burning, ideally in early spring before green up.

Fencing must be in place and water wells drilled before grazing can begin. Many CRP fields do not have fences or have inadequate fencing for containing livestock. Fencing can be made of barbed wire, electric fencing, or a combination of the two. A 5-strand barbed wire fence including corners and gates costs between $6,000 and $6,800 per mile to construct, as shown in Table 3. The cost of electric fencing is estimated at $693.24 for a one-strand electric wire and $890.12 for a two-strand electric wire.

Most CRP land does not have functional water wells, so drilling a well and installing a windmill or electric submersible pump is necessary. The well costs at various depths and the windmill costs at various heights are presented in Table 4. Estimated cost is based on 5-inch PVC casing and includes drilling, casing, capping, applying gravel, packing, and digging a slush pit. The estimated costs include mill, tower, sucker rod, pipe removal and replacement, and cylinder pump. Annual repair costs of $50 to $75 per year include the changing of oil in the windmill twice a year along with other miscellaneous parts and repairs. A windmill is expected to last about 75 years. Four gallons per minute is recommended on a section—640 acres—assuming a grazing intensity of 8 acres per animal unit, or the equivalent of a 1,000 pound cow with calf. Different grazing strategies will have different water requirements. On average, cattle require between 9 and 18 gallons of water each day, depending on weather conditions, body size, physical characteristics, and gender. Along with a functioning water source, water storage is required. At least a 3- to 5-day water storage capacity is recommended. Steel stock tanks and earthen tank constructions are popular methods of storage. A steel stock tank that holds 1,134 gallons costs about $340.

Costs associated with the well and a solar submersible pump at various depths are listed in Table 5. The cost includes solar panels, pump, pipe removal and replacement, platform, wiring, control box, and installation.

Table 3. Estimated fencing costs for electric and permanent fencing per mile

1 Strand 1 Mile Electric			
	Quantity	Price per unit	Total
Rebar posts	264	$0.74	$195.36
Wire (1 mile)	1	$152.00	$152.00
Insulators	264	$0.17	$44.88
Solar panel	1	$190.00	$190.00
Charger	1	$111.00	$111.00
Total			**$693.24**
2 Strand 1 Mile Electric			
	Quantity	Price per unit	Total
Rebar posts	264	$0.74	$195.36
Wire (1 mile)	2	$152.00	$304.00
Insulators	528	$0.17	$89.76
Solar panel	1	$190.00	$190.00
Charger	1	$111.00	$111.00
Total			**$890.12**
5 Strand 1 Mile Barbed (Turn Key Construction)			
	Quantity	Price per unit	Total
5-strand barbed wire	1	$6,400.00	$6,400.00
Total			**$6,400.00**

Table 4. Estimated well and windmill costs for various depths and windmill heights

Well		Windmill			
Depth (ft.)	Cost	Size (ft.)	Cost	GPM	System cost
150	$4,500	12	$16,350	4	$20,850
250	$5,400	12	$19,650	4	$25,050
350	$7,300	12	$22,950	3	$30,250
450	$9,200	14	$29,250	4	$38,450
550	$11,100	14	$32,500	4	$43,650

Table 5. Estimated well and solar submersible costs for various well depths

Well		Solar Submersible		
Depth (ft.)	Cost	Cost	GPM	System cost
150	$4,500	$11,500	4	$16,000
250	$5,400	$15,500	4	$20,950
350	$7,300	$18,500	3	$25,800
450	$9,200	$20,850	2	$30,050
550	$11,100	$22,550	1	$33,650

Notice the drop in gallons per minute as the well depth increases. A solar submersible does not pump effectively at greater well depths. Expected annual repair costs are negligible. A submersible pump usually lasts about 10 years, and solar panels, 40-plus years.

In addition to well and fencing costs, controlled burning and fertilization costs must be taken into account when developing former CRP land for grazing. The controlled burn will cost an average of $4.50 per acre. A rate of 40 pounds of nitrogen should be applied with a knife and coulter rig following the initial burn down, as shown in Table 6. After the fertilizer has been applied, let the grasses gain 6 to 8 inches of re-growth before grazing is allowed. Appropriate stocking rate will vary for each operation, depending on existing grasses. The species composition 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.

Conclusion and Summary

When choosing to convert former CRP land to cropland or grazing, a landowner is faced with several decisions. The costs involved in the conversion process must be considered. Conversion costs will be between $130 and $160 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 production will range between $190 and $220 per acre.

Converting to livestock grazing will cost about $40 to $60 per acre if burning and fertilization are utilized. In addition, fencing and development of a water source may be needed. Expect to pay $693.24 per mile for one-strand electric fencing and $890.12 per mile for two-strand electric fencing. Barbed wire fence will cost about $6,400 per mile including gates and corner posts. A well with a windmill will range between $20,000 and $44,000, and a well with a submersible pump will range between $16,000 and $34,000.

Analyze the situation completely, focusing on the individual operation and figuring the numbers accordingly. Local Natural Resources Conservation Service field offices provide assistance in understanding the issues of conversion and offer insight into any financial cost-share programs available to help offset costs.

References

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

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

Table 6. Estimated costs of converting CRP to pasture, dryland, cattle grazing 2008 projected costs per acre; Texas Panhandle area

Date	Item		Unit	Price	Quantity	Amount
	Direct expenses of conversion					
April	controlled burn	burn	acre	$4.50	1.00	$4.50
May	soil test	sample	acre	$0.25	1.00	$0.25
June	fertilizer	fert (N) 32-0-0	lb	$0.71	40.00	$28.40
June	fertilizer	fert appl.	acre	$12.00	1.00	$12.00
				Total direct expenses		**$45.15**

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