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PRODUCTION TECHNOLOGY

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LIVESTOCK PRODUCTION ON LAND FORMERLY ENROLLED IN THE CRP PROGRAM

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Overview

Holders of Conservation Reserve Program (CRP) contracts will have to choose the future use of this land in 1997. Many of these acres will be returned to the landowners because they will not be accepted into CRP-2. Because many of these landowners do not want to return these lands back to crop production, these acres will remain in grass. Once this decision has been made, considerations must be given as to how to maximize the return on the grass.

Renovating CRP Plantings for Grazing

A first step in renovating an area for grazing is the removal of the standing residue. Removing standing dead forage will increase light penetration, stimulate new growth and improve forage quality. Several options are available for removing the dead residue.

Mowing or shredding is one option but will cause more harm than good since it does not remove the dead forage and creates a thatch layer that hinders the grass growth. Haying is an effective, but expensive means of removing the dead residue because the nutritive value of the hay is very low (2-3% crude protein). This hay would be best stacked and used for emergency feed or ground cover on eroded areas. Grazing at a high stock density is another option, but because of the poor nutritive value of the forage and the high stock density, cattle performance will be poor. The cattle will require additional mineral and protein supplementation so his is probably not a economical alternative for most cattle producers.

Prescribed burning is probably the most cost-effective method of removing the old growth. Burning will cost $1 to $2/acre. In addition to uniform forage removal, burning warms the soil, returns mineral elements to the soil, and suppresses undesirable plants that have established in the grass. Burning is a safe and effective practice if the burn is planned properly.

Because of the 10 years of the land's nonuse,

plants may not be as vigorous as ones in grazed stands. Therefore, the plants on CRP land may break dormancy later and grow more slowly early in the growing season. The plants need to accumulate leaf area to replenish root carbohydrates and regain vigor. Studies have shown that grasses may take up to 2 years to become fully productive after being in CRP. Delay grazing until the grasses have accumulated 6 to 8 inches of regrowth.

Management after Renovation

Identification. CRP plantings included native grass mixes, and introduced forages such as weeping lovegrass and Old World bluestems. Management of native grass mixes differs from management of introduced grasses. Generally, introduced grasses tolerate heavier grazing pressure and require fertilizer to maintain production. Among other characteristics, season of growth and peak forage production varies among the introduced grasses. All "CRP grass" is not the same.

Forage Production. Forage production of introduced species varies across precipitation zones and the level of fertilizer inputs. Introduced grasses will yield from as little as 2,000 lbs/acre in the Panhandle to over 8,000 lbs/acre in central Oklahoma. These species will require nitrogen fertilizer to maintain forage production and also increase crude protein content of the forages. Phosphorus may also be required and should be applied according to soil test.

As a general rule, one pound of actual nitrogen (N) will increase forage yields by 20 to 50 lbs/acre. Optimum rate of N fertilizer for Old World bluestems in the Panhandle appears to be 40 -60 lbs and in south central Oklahoma 70 - 100 lbs N/acre. A single application in late April or early May has been most effective in regions receiving less than 25 inches of precipitation. In contrast, split applications are recommended for weeping lovegrass and where rainfall is higher. Three years of studies on CRP fields showed burned and unfertilized Old World bluestem yields averaged 2700 lbs/acre while Old World bluestem fertilized with 60 lbs/acre of nitrogen yielded 3500 lbs/acre and 6200 lbs/acre at Forgan, OK and Duke, OK, respectively.

Native grass plantings may yield as little 1,000 lbs/acre in the Panhandle to more than 4,000 lbs/acre in higher rainfall areas. These species do not respond efficiently to nitrogen fertilization and this practice is generally not recommended. Therefore, native mixes cannot be stocked as heavily as introduced species. The USDA-ARS Station at Woodward, Oklahoma, has recommended a stocking rate for yearlings on plantings of native species at 5 to 6 acres/steer, and plantings of Old World bluestems at 2 acres/steer.

Forage Nutritive Value. All warm-season grasses are highest in forage nutritive value early in the growing season. As the season progresses, nutritive value declines and weight gains of cattle will also decline. A study conducted near Clovis, New Mexico on CRP lovegrass using steers in either continuous, season- long or rotational, short and season-long grazing found that peak average daily gains of the steers in 1995 ranged from 2.8 - 3.8 lbs in May to actually losing as much as 0.5 lbs in November. Season average gains were still good and ranged from 0.91 - 2.1 lbs. Warm-season grasses typically are low in crude protein relative to the energy available from the forage so protein supplementation may be necessary to maintain forage intake and performance. The introduced grasses that are capable of high yields will usually decline in nutritive value more rapidly than some of the range forages. Studies in Oklahoma comparing the nutrient profiles in forage grazed from rangeland and fertilized Old World bluestems show that forage crude

protein and digestible energy were similar for the two forage resources.

Grazing management. With the introduced forages, some type of rotational grazing system is recommended to control forage use and maintain forage nutritive value. A 4- to 6-paddock system is adequate. Native mixes will also benefit from rotational grazing that allows plants to recover from grazing. All warm-season species benefit from a rest period in the late summer and early fall. Once the plants have entered dormancy during the winter, cattle can graze the residue without harming the plants. However, avoid excessive removal of standing litter as it insulates the crown of the plants and reduce freeze damage.
Excessive dormant forage removal also reduces the opportunity for prescribed burning during late winter and early spring.

Beef Production. Beef production per acre will vary in different regions of the state due to precipitation levels and fertilizer strategy. On most of the warm-season forages, both native mixes and introduced pastures, weight gains should average between 1.5 and 2.0 lb/day for yearlings grazing in the summer. A critical factor affecting gains is the stocking rate imposed on a grazing unit. As stocking rate increases, individual cattle performance will decline but gain per acre will increase to a point.

The stocking plan should not be solely aimed at increasing gain per acre. It is possible to achieve high gains per acre but lose money in the process. Individual cattle must gain a certain amount of weight to cover the costs associated with owning the cattle. For individuals that own land and lease grazing to cattle owners, the landowner must not set stocking rates at a level that will be unprofitable to the cattle owner or the business relationship will deteriorate rapidly.

A 3-year, four- pasture rotation grazing study on fertilized Old World bluestem using two hundred sixty five 450-wt. heifers was conducted near Amarillo, Texas. The heifers gained 162, 64, and 72 lbs/ acre in 1993, 1994, and 1995 respectively and had a net return to land of $30, $17 and $8 per acre. As a point of reference, data from the USDA-ARS station in Woodward, Oklahoma comparing several forage types is presented in Table 4.

Table 4. Stocking rates and performance of yearling cattle on different forage types at Woodward, Oklahoma.

Forage Type	Stocking Rate, (acre/head)	Gain/acre ($)
Native Range	7	54
Seeded Blue Grama and Sideoats Grama	5.2	69
Seeded Switchgrass	3	108
Weeping Lovegrass	2	150
Old World Bluestems	1.5	187

Research and field studies on dryland Old World bluestem pastures in the High and Rolling Plains of Texas suggest stocking rates of 1.5 to 3.0 acres per yearling for the summer months. Two to three acres per yearling would be a more stable stocking rate

for cattle performance. In areas with higher precipitation, stocking rates can be increased to about one acre/yearling.

Fencing and Water Developments

Most of the land enrolled in the CRP will need to be fenced or the existing fences repaired. Both perimeter fencing and interior crossfencing are necessary and expensive. Some turn-key construction estimates for barbed wire fencing range from $0.65 - $0.85/ft. Power fencing is the less costly ($0.15 - $0.35/ft) but may have higher maintenance costs than conventional barbed wire fencing.

Fencing costs per acre decline as the tract size increases. Estimated costs for perimeter fencing on 160 and 320 acre CRP tracts with one interior divider fence is shown in Table 2.

Table 2. Estimated fencing costs for 160- and -320 acre tracts.

	Acres	Miles	$/mi.	$/ac.	20-yr payout ($/acre/year)
Perimeter fence					
4-strand barbed wire	160	2	3,696	46.20	5.2
	320	3	3,696	34.65	3.93
3-strand power fence	160	2	1,584	19.80	2.25
	320	3	1,584	14.85	1.69
Interior fence					
2-strand power fence	160	.5	924	2.89	0.33
	320	.5	924	1.44	0.17

Livestock water developments must also be considered. Some CRP tracts are adjacent to areas with functional watering. Others may require reconditioning an existing well and adding drinking tubs and storage. Still others may require a complete development.

Many of the introduced forages can carry more livestock than a rangeland area of the same size. For this reason, the amount of water that must be provided daily per acre of grazing land will be higher on these CRP tracts. In addition, rotational grazing management plans that consolidate cattle into larger herds may further increase the demands on a water development.

Cattle require between 9 and 20 gallons of water daily when the temperature is 90° F, depending on body weight. One watering point should be adequate for grazing units up to 640 acres in size. A water supply storage of at least 3-5 days is usually recommended to ensures that cattle can be watered during a pump or windmill breakdown. A 320-acre Old World bluestem pasture stocked with 160 yearlings requires about 2,000 gallons of water daily.

Several alternative pumping systems are available. Both windmills and solar pumping systems are attractively priced, but their pumping capacity may limit their utility.

Systems that use submersible pumps are more costly but provide a more reliable supply of water. The estimated costs and pumping capacities for various pumping systems are listed in Table 3.

Table 3. Estimated costs of different pumping systems for livestock water.

	Estimated Cost[a]	Capacity
Solar pump	$3,000 - 3,500	400 - 2,000 gallons/day
Windmill	$4,000 - 4,500	1 - 3 gallons/minute
Submersible pump 220 AC	$1,100 + electrical line	7 gallons/minute
Submersible pump + diesel generator	$7,000 - 7,500	7 gallons/minute
Windmill + submersible pump + diesel generator	$11,000 - 12,000	1 - 7 gallons/minute

[a]Does not include drilling new well or reconditioning old wells, and does not include storage tanks or ponds.

Some areas of the state rely on surface water. The cost of these installations depends on the amount of dirt work required and other factors such as sealing the bottom of the ponds. The Natural Resources Conservation Service can assist with these cost estimates.

Assistance for Producers

Specialists in the Oklahoma Agricultural Extension Service, in addition to technicians and conservationists with the Natural Resources Conservation Service, can provide valuable assistance to producers. The information in this bulletin is general in nature and producers should seek recommendations for their specific region and production system.

Parts of this information were provided by F.T. Ted McCullum III, Professor and Extension Beef Cattle Specialist, TAMU, Amarillo, TX.