Colorado Drought Mitigation & Resource Recovery Plan

Executive Summary

USDA Natural Resources Conservation Service - Colorado *May 2003*

Colorado is in the grip of a multi-year drought one of the worst on record. Currently, 75% of the state is considered to be in "extreme" drought, with the remaining portion rated "severe" or "moderate." Snowpack has been below normal each year since 1997.

The drought is having a major impact on the agricultural economy and the underlying natural resources of the state. Rangelands are suffering significant losses in production and ground cover. Irrigated and dry croplands suffered significant production losses last year. In some cases, fields were abandoned and have little or no protective residue cover. Wildfires raged across much of the state in 2002, leaving watersheds vulnerable to floods and threatening municipal and agricultural water supplies.

Much of the state depends upon stream flows for irrigation water. Most streams are forecast to carry significantly less water than normal. One-half of the mountains will support less than 70% of average streamflow, with some less than 50%. This means another short water year for irrigated cropland and hayland.

Reservoir storage in Colorado is only 60% of average. This means that there will be little reservoir water to offset shortages in natural stream flows. Despite recent snow and rain over much of the state, snowpack remains below normal. It will take sustained above normal precipitation over a period of years to replenish the significant water deficits that exist in soils, woody vegetation, aquifers, and surface reservoirs.

We may not be able to stop the drought; but we can take action to improve things. The Natural Resources Conservation Service's (NRCS) work is focused on private lands. We administer a number of programs that can be directed or redirected to help mitigate the impacts of drought on our landscapes and on our economies. Action must be taken now to ensure protection and recovery of our soil, water, air, plant, and animal resources. This is important, not only for agricultural production, but also for wildlife and for rural and urban community health. Together with conservation districts and other conservation partners, we can enhance the ability of our resources and land managers to withstand future droughts.

NRCS in Colorado has begun preparation for a targeted drought mitigation effort that will:

- **Reduce the impact of the current drought**
- **Accelerate recovery of our natural resources**
- **Prevent avoidable impacts from future droughts**

Summary of Resource Impacts

Rangeland and Pastureland

- There are 25.2 million acres of privately owned grasslands in Colorado.
  - ✔*Nearly 15 million acres (59%) of the total grassland resource are classified as critically or significantly impacted by drought.*
- 24 million acres of privately owned rangeland are in Colorado.
  - ✔*14.5 million acres (60%) are critically or significantly impacted by the drought.*
  - ✔*Recovery will be delayed in Colorado's arid and semi-arid moisture regimes.*
- Colorado has nearly1.2 million acres of privately owned pastureland.
  - ✔*43% of them normally are under irrigation.*
  - ✔*444,000 acres are critically or significantly impacted by the drought.*

Irrigated Cropland

- There are approximately 3.8 million acres of irrigated cropland in Colorado.
  - ✔*6% (227,000 acres) are currently estimated to be in "critical" condition land that will not have water this year and that has no protective cover of crop residue.*
  - ✔*The Rio Grande, Lower Arkansas, and Gunnison-Dolores Basins are in worse condition, with 15%, 11%, and 10%, respectively, rated as "critical."*

Non-irrigated (Dry) Cropland

- There are approximately 7.38 million acres of dry cropland in Colorado.
  - ✔ 10% (*742,000 acres)* are currently estimated to be in "critical" condition--e.g., they have no protective cover of crop residue.
  - ✔ The Gunnison-Dolores and North Platte-White-Yampa Basins are in worse condition, with 39% and 19%, respectively, rated as "critical."
  - ✔ 2002 winter wheat production was the lowest since 1967-down 45% from 2001.
  - ✔ Nearly 700,000 acres (*almost one-third of all planted acres*) were abandoned.

Forestland

- There are 3.4 million acres of privately owned forestland in the state, 32% of the state's total.
  - ✔ One-half of these forests are considered to be critically stressed by drought and in need of treatment for pest control, fuel reductions, and stand improvement.
  - ✔ There were 1,400 wildfires recorded in 2002 in Colorado. While 98% of these were quickly controlled, the other 2% raged and burned 380,000 acres.
  - ✔ These lands are managed by over 200,000 individual property owners, as well as by state and local agencies.
  - ✔ Three forest types Ponderosa Pine, Lodgepole Pine, and Pinyon-Juniper constitute 1.2 million acres of the total.

Conservation Treatment Requests (*Drought-Related*)

Applications received for 2003 EQIP funding convey the widespread need for conservation treatment and financial assistance. A total of 2,958 applications requested over $80 M for all assistance available through EQIP. **Drought-related** applications included the following:

EQIP Issue ***(Drought Related)***	**($) Requests**	**Acres**
Water Quality/Quantity	$32,150,290	162,975
Soil Erosion	$ 3,574,975	81,538
Grazing Lands	$13,399,203	1,177,925
Ground/Surface Water Conservation	$13,437,312	121,558
Totals	**$62,561,780**	**1,543,996**

Total Conservation Need - (*Drought-Related*)

Estimated financial cost to treat drought-impacted resources statewide.

Land Use	**Critical Acres**	**Avg. Treatment Cost/Acre**	**Total Cost**
Range/Pasture	14,949,000	$ 7.50	$112,117,500
Irrigated Cropland	227,498	$275.00	$ 62,561,950
Dry Cropland	741,874	$ 60.00	$ 44,512,440
Forestland	1,196,934	$ 300.00	$ 359,080,200
Grand Total:	**17,115,306**	**--**	**$578,272,090**

If no additional funding is made available, we will target our limited financial resources to address the most urgent problems that provide the greatest benefits. Up to 15% of EQIP funds could be redirected to fund drought assistance.

Strategies/Actions

Rangeland and Pastureland

Goal: Protect grassland resources from further degradation and enhance recovery.

Actions:

- Help producers to implement prescribed grazing plans suited to their unique conditions.
- Assist producers to implement Rapid Resource Assessment techniques that they can employ on their own to improve grassland resource monitoring and restocking strategies.
- Help producers to make infrastructure improvements, e.g., livestock watering facilities *(wells, tanks, pipelines)* and fencing to facilitate rotational grazing systems.
- Target financial assistance to the most severely impacted grasslands.
- Re-seed damaged lands where appropriate.
- Help producers enhance wildlife habitat.

Irrigated Cropland

Goal: Protect the soil resource and maximize the beneficial use of water.

Actions:

- Help producers to improve their irrigation water management efficiencies.
- Help to upgrade irrigation infrastructure where appropriate.
- Assist producers in planning cropping sequences that promote soil health, plant vigor, and water conservation.
- Help producers to implement conservation tillage.
- Support planting temporary cover crops *(e.g. small grains)* that may provide temporary livestock foraging opportunities, in addition to soil protection especially in temporarily de-watered areas.

Non-irrigated (Dry) Cropland

Goal: Protect and improve the soil resource.

Actions:

- Help producers to implement conservation tillage, including no-till.
- Help producers to plan and install terrace systems for soil and water conservation.
- Help producers to establish temporary and permanent wind erosion measures.

Forestland

Goal: Protect our forest resources.

Actions:

- Provide increased technical assistance to landowners/managers.

- Promote Forest Stand Improvement, with slash removal for fuels reduction and insect control.
- Install fire breaks.
- Implement Pest Management for insect and weed control.
- Promote Tree/Shrub Establishment for reforestation.
- Encourage Prescribed Burning for fuels reduction in partnership with the Colorado State Forest Service.

Other strategies/actions

- Upgrade all SNOTEL sites with scan sensors *(snow depth, soil moisture/temperature @ three depths, wind speed/direction)* to provide fire weather data to land management agencies, improve soil moisture forecast data, and implement advanced simulation models in forecasting.
- Collaborate with the Colorado State Forest Service and Federal land management agencies on forest and rangeland fire issues.
- Assist in reseeding efforts to protect the watersheds of municipal water supplies.
- Implement an aggressive information and education action plan to inform landowners about the programs and technical assistance available to them, and to educate them about the things they can do to address their own unique situations.
- Collaborate with state and local public and private organizations to promote water conserving landscaping, such as Xeriscape.

ACCOMPLISHMENTS/SUCCESSES

To date Colorado NRCS has...

...redirected $3.68 M to drought-related activities through the EQIP program;

...obligated an additional $4.58 M to drought-related resource issues through our regular EQIP Program and the Ground and Surface Water Conservation EQIP Program;

...detailed staff to critically impacted areas of the state to work one-on-one with producers participating in the Drought EQIP Program;

...established a drought page on our website that directs users to a variety of useful information;

...developed "Weathering Tough Times -Drought History and Recovery" publication in cooperation with the Colorado Department of Agriculture and in conjunction with Governor Owens Annual Agricultural Forum.

...developed brochures/fact sheets on drought impacted range management through the Grazing Lands Conservation Initiative;

...utilized hundreds of volunteers in work related to post-fire watershed protection.

For additional Information, please call 720-544-2810