


CARBON COUNTY


Noxious Weed Control Plan

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TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 GOALS AND OBJECTIVES	1
Awareness	2
Education	2
Training	2
3.0 WHERE ARE THE WEEDS COMING FROM	2
4.0 COSTS OF WEEDS	3
High Cost of Weeds	3
Costs to Taxpayers and Property Owners	3
Reduction of Property Values	3
Skyrocketing Future Costs	3
Impacts to Crops and Livestock Production	3
Cost to Crops	4
Cost to Livestock	4
Cost to Wildlife	5
Cost to Recreation	5
Overall Impacts	5
5.0 MANAGEMENT OF NOXIOUS WEEDS	5
Management	5
Budget	5
Prevention	6
Agency Coordination and Cooperation	6
Detection	6
Public Involvement and Education	7
Suppression (Containment and Control)	7
Methodology of Weed Control	8
Noxious Weed Identification and Herbicide Use	8
6.0 AUTHORITY AND ENFORCEMENT OF NOXIOUS WEED MANAGEMENT PLAN	11
Authority	11
Enforcement	11
Pesticide Use	13
7.0 RECORD KEEPING	13
Purpose	13
Description of Records	13
Appendix A.	Noxious Weed Infestation Report
Appendix B.	Noxious Weed Alert
Appendix C.	Individual Notice to Control Noxious Weeds
Appendix D.	Noxious Weed Management Plan
Appendix E.	Billing Record
Appendix F.	Daily Noxious Weed Control Record
Appendix G.	Annual Progress Report

CARBON COUNTY NOXIOUS WEED CONTROL PLAN

1.0 INTRODUCTION

Noxious weeds are present throughout the State of Utah. It is fair to state that every county has a concern with the invasion of noxious seeds within their boundaries. The invasion of noxious weeds has been likened to a raging biological wildfire out of control and spreading rapidly (Dewey, Steven A., Noxious Weeds, A Biological Wildfire)

Carbon County has major problems with the spread of noxious weeds. Sixteen (16) species of the eighteen (18) species listed by State Department of Agriculture are found within the County.

TABLE I - County Weed Survey and Control Action

	<u>WEED</u>	<u>ACRES*</u> (1997)	<u>ACRES *</u> (2001)	<u>CONTROL ACTION</u>
1.	Bermuda Grass	0		Eradicate
2.	Black Henbane**		7.2	Eradicate
3	Canada Thistle	750	Increasing	Control/Biological
4.	Dalmatian Toadflax**		.51	Eradicate
5.	Diffuse Knapweed	0		Eradicate
6.	Dyers Woad	50	2	Eradicate
7.	Field Bindweed	1000+	Increasing	
8.	Johnson Grass (sorghum)	0		Eradicate
9.	Leafy Spurge	2	.2	Eradicate
10.	Medusa Head	0		Eradicate
11.	Musk Thistle	6000	Increasing	Control/Biological
12.	Purple Loosestrife	1	.3	Eradicate
13.	Quackgrass	1000+		
14.	Russian Olive Trees	1000+		Contain/Control
15.	Russian Knapweed	300-1000	6500	Contain/Control
16.	Scotch Thistle	50	511.83	Eradicate
17.	Spotted Knapweed	1	1.2	Eradicate
18.	Squarrose Knapweed	0	0	Eradicate
19.	Tall White Top (Perennial Pepper weed)	2	2.07	Eradicate
20.	White Top (Hoary Cress)	2000	Stable	Control/Contain
21.	Yellow Star Thistle	0		Eradicate
22.	Yellow Toadflax**		1.5	Eradicate
<p>*Estimate--actual acres are difficult to compute. **Weeds added to list in 2002 This data is taken from annual reports to the State Department of Agriculture compiled by Mikel Johnson, Carbon County Weed Supervisor and GIS/GPS mapping of weeds in Carbon County.</p>				

Noxious weeds occur on both privately and publicly owned lands. It is important that owners and caretakers of the land, be it public or private, take responsibility to prevent the continued spread of noxious weeds within their ownership.

2.0 GOALS AND OBJECTIVES

The Goal of the Carbon County Weed Board is to comply with Utah Noxious Weed Act Title 4, Chapter 17, and assist property owners in identifying, preventing, and encouraging the suppression of noxious weeds within Carbon County by:

1. Preventing the establishment of new infestations;
2. Controlling the spread of noxious weeds;
3. Eradicating where possible; and
4. Containing the area of infestation.

This will be accomplished by the Carbon County Weed Board through:

1. Awareness;
2. Education; and
3. Training.

Awareness

The first step toward accomplishing this is to make people aware that a problem exists. The Carbon County Weed Management Plan was developed to increase land owner awareness and their responsibility for supporting, implementing, and taking part in a weed management program. By working together, we will increase the awareness of the citizens of Carbon County that weeds are not only a problem, but that resources are available to help identify, control, and hopefully eradicate noxious weed problems in Carbon County. By accomplishing this, we will be able to preserve and enhance our natural resources in Carbon County.

Education

The Weed Board will take the lead in an effort to educate the citizens of Carbon County on the positive aspects of managing noxious weeds. It will work to help land owners improve their knowledge of weed identification, weed control methods, and provide other useful information about weeds that they should know. The Weed Board will utilize a number of resources, such as, but not limited to: news releases, public meetings, brochures, cooperation with agencies and other groups to educate landowners and the general public.

Training

The weed plan will contain information that will aid individuals on how to manage noxious weeds. Use of Utah State University Extension Specialists, the Carbon County Weed Supervisor, and other trained people will be made available to train and aid in the weed control efforts.

3.0 WHERE ARE THE WEEDS COMING FROM

Carbon County is a strategic transportation corridor in the State. It is dissected by numerous highways, routes, and rail lines used in the transportation of goods and services, and for recreational and nonrecreational purposes.

Weed seeds are not only transported via the major transportation corridors, but by water ways, farmers, ranchers, developers, livestock, wildlife, light and heavy equipment, recreationists, and others, which have come in contact with weed infested areas. It should also be noted, that weeds and seeds have been introduced into this area through flower arrangements and commercial nurseries.

As a corridor to the Colorado Plateau, Carbon County provides a buffer zone between the weed infested counties along the Wasatch Front. Therefore, to prevent the spread of noxious weeds throughout the Colorado Plateau, it is imperative that Carbon County takes a pro active approach with its management of noxious weeds.

4. 0 COSTS OF WEEDS

High Cost of Weeds

Owners and managers should care about Noxious Weeds, because if they do not control them, the economic impact affects all: farmers, ranchers, mountain bikers, hunters, consumers, property owners, and others. Most of all, noxious weeds have a direct economic impact on all who are taxpayers.

Costs to Taxpayers and Property Owners

Whether they realize it or not, area taxpayers are contributing a part of their annual incomes to the cost of controlling weeds. Carbon County for the past several years has spent approximately \$75,000 per year to control noxious weeds on county roads and lands. County funds have been used on private lands in several cases in order to help prevent the spread of noxious weeds.

Private land owners also spend their own funds to manage and control noxious weeds. In addition, the Bureau of Land Management has furnished the County up to \$ 10,000 per year to control weeds on their public lands. The Forest Service is attempting to control weeds on National Forest Lands. There are many landowners who have not made any effort to control weeds within their boundaries. This has a direct economic impact on all other landowners.

Reduction of Property Values

While this may seem unlikely for Carbon County, where land values are high for home development, property values may be reduced as much as \$ 100 to \$3 00 per/acre depending on the noxious weed involved. (Goold, Chris; Noxious Weeds, Changing the Face of Southwestern Colorado)

If weed infestations spread without control or containment, large acreage of land used for farming, grazing, or recreation will become completely useless for these purposes. This may be more applicable to state and federal lands, where grazing permits are granted and big game species are dependent.

Skyrocketing Future Costs

Making a greater effort to control noxious weeds now will save taxpayers money and efforts later. Delayed efforts to contain or control weeds will increase costs. Carbon County presently has 10,000-plus acres of weeds such as; musk thistle, whitetop, scotch thistle, knapweed, and dyers woad that are costly to control. As these weeds spread the cost will increase at an astronomical rate.

Impacts to Crops and Livestock Production

Noxious weeds directly effect the crop and livestock production in Carbon County, which in turn has an effect on the everyday consumer.

Cost to Crops

As Noxious Weeds invade small or large areas of farm lands, they steal precious water and nutrients from the crops. A noxious weed like Russian knapweed actually releases an enzyme or toxin into the soil that will inhibit the growth of any plant near it. As a result, crop production is reduced sometimes radically ranging from a loss of 20 to 30% in production. (Goold, Chris; Noxious Weeds: Changing the Face of Southwestern Colorado). Other weeds, such as a leafy spurge, have the same effect on farm crops and range land plants.

Farmers as well as other land owners in Carbon County are losing crop production to musk thistle. With the invasion of several species of knapweeds, whitetop, and other threatening noxious weeds, they are certain to lose more production.

If weeds in farm crops are not soon contained, the value of these crops will decline. Restriction may be imposed by the County Weed Supervisor. Presently, a greater effort is being made to have weed free crops that are sold and moved from place to place. This effort will increase more as noxious weeds become a greater nuisance. Currently the U.S. Forest Service requires weed free hay and straw for those users who take these products into the National Forest. Some counties in the western states have quarantined noxious weed infested crops to the infested location.

Cost to Livestock

Ranchers and farmers who rely on private, public and state grazing lands within the county are now facing a serious problem with noxious weeds. Noxious weeds on rangelands displace native grasses and forbs that reduce forage available for livestock and big game animals. This in turn reduces the carrying capacity of range lands, and increases the potential for soil erosion. As weeds continue to spread, farmers and ranchers will be forced to seek other grazing lands for livestock use.

In Carbon County some rangeland acres have reduced capacity because of the amount of musk thistle now occupying these sites. It may be comparable to that of Western Colorado, where it is estimated many private pastures have had production reduced as much as 50%.

Russian Knapweed has affected over 300-1000 acres near Islander Wash. This land is almost totally covered with knapweed which has no value for grazing by either wildlife or livestock.

There are now approximately 2 acres of leafy spurge in the County. One stem of leafy spurge per square foot reduces cattle grazing by 50% according to some studies. Two stems per foot can reduce grazing capacity by up to 90% for livestock and wildlife.

To date, there have not been any studies to determine the total loss of forage production for Carbon County. But, more than 10,000 acres of noxious weeds within the county, forage production depending on location and density of the weeds may be severely reduced, possibly up to 50% or more.

Noxious weeds can also be poisonous to livestock. Leafy spurge can be poisonous to cattle and may cause blindness. Yellow star thistle and Russian knapweed are toxic to horses. Hounds tongue is poisonous to cattle and horses.

Cost to Wildlife

Big game, elk and deer are also affected by noxious weeds, which in turn could ultimately affect hunting and tourist revenues in our area. Researchers admit it is difficult to pin down the effects of noxious weeds on wildlife, they suggest that noxious weeds could influence wildlife by displacing forage.

Cost to Recreation

Noxious weeds could potentially affect visitors who come to fish and hunt in the County or who visit the several state parks in Carbon County. Musk thistle along streams and rivers are in some areas so thick that it may affect those who try to fish these streams. Water districts should be concerned about the impact that weeds are having in the areas they manage and have influence over. State Park and Recreation visitors will continue to see a loss of aesthetic values as more and more weeds invade recreation sites.

Overall Impacts

Perhaps the great potential impact of the continued spread of noxious weeds is to the bio diversity of the native plant communities. The loss of native plant communities to noxious weeds is a serious matter, one that we cannot take lightly. With the loss of native plants to introduced species which have little or no natural controls, the impacts on the bio-diversity will be long lasting.

Certainly one cannot begin to understand this impact until they look at such areas in North Dakota where native plant communities have been almost total replaced by leafy spurge. This has cost the state of North Dakota up to \$87 million in lost revenues-not counting the aesthetic costs to the landscape.

5.0 MANAGEMENT OF NOXIOUS WEEDS

Management

Management of noxious weeds is much like modern wildfire management. The same elements of management apply such as prevention, detection, suppression (control), and re vegetation. It is important that there is a balance of all four elements for effective management. Carbon County has done a fair job in detection and

suppression and will improve in these areas due to implementation of a GIS mapping system. Budgeting for wildfire management is distributed as follows: prevention-15%, detection-23%, suppression -59%, and re vegetation -3%. It is suggested that a similar budget be established for the management of a noxious weed program (Dewey, Steven; Noxious Weeds; A Biological Wildfire).

Budget

As indicated earlier in this report, Carbon County has been spending approximately \$75,000 each year for detection and suppression. There has been very little funding for prevention. If Carbon County is going to get on top of the weed problem, there is a need to increase its efforts in the prevention phase.

County budgets should be coordinated with funds from state and federal agencies, and industrial and private ownerships to accomplish the total job of weed management. Future budgets should reflect the necessary increase in prevention, as well as maintain the effort in detection and suppression. At this point there is a need for all soil disturbing activities to be re vegetated as soon as possible to prevent the establishment and spread of noxious weeds as well as other evasive weeds.

Prevention

It is important that the County's effort in this area be increased. Education concerning the impact that noxious weeds can have on the lands they invade is of primary importance.

Public support for increased awareness must come from all parts of our County government and especially from those involved in the management of noxious weeds. This job can no longer be left to one individual in the County.

Carbon County must adopt a prevention program, which includes provisions that prevent:

1. Contamination of seed, feed, grain, hay, or mulch by noxious weeds;
2. Movement of uncleaned light and heavy equipment from noxious weed contaminated areas;
3. Movement of domestic animals that have viable seed present in their digestion system or attached to their hair or wool;
4. Scattering of noxious weed seed by persons collecting those plants for ornamental purposes;
5. Use of gravel, road fill, or soil media contaminated with noxious weed seed for construction, site preparation, or re vegetation purposes; and
6. Any other activity that causes the spread or invasion of noxious weeds.

In order to accomplish the above, the County Commissioners will need to set standards for compliance and a plan for enforcement.

Agency Coordination and Cooperation

A vital link in the management and control of noxious weeds within the county and throughout the state is coordination and cooperation between all state and county agencies. Without that coordination and cooperation, management of noxious weed will ever happen--its magnitude and complexity are too great. Planning for budgets, educating the public, and mapping of new weed locations is a job that requires everyone's involvement.

Detection

The county has a good knowledge of the current location of the noxious weed infestations. It is vitally important we obtain public support and involvement in reporting new infestations that occur if we are ever to control the spread of noxious weeds.

Public Involvement and Education

Through an increased education program, the public will become more aware of the noxious weed problem and its costs to the environment. As we educate our public in the prevention, they will be better able to identify noxious weed infestations and report them to local government officials, weed board members, and other responsible individuals.

More than any other group of citizens, we need to hear from recreationists who use the land for walking, riding, hunting, and watching wildlife. They are or can be an excellent source for locating noxious weeds on public lands and larger tracts of private land. The Weed Board is committed to implement an education and prevention action every year. For example in 1998 a noxious weed brochure and map will be sent to every property owner in the county, and in future years emphasis will be placed on at least one noxious weed species per year.

Suppression (Containment and Control)

Suppression suggests that the weeds are either eliminated completely or that they are reduced to a level that provides little or no threat to the environment. As the County approaches the monumental task of managing the 10,000 acres of weeds it now has, there is a need to decide what level of suppression can be given and how much money can be used for that effort. In Table 1, the weeds are placed into three separate categories or levels of suppression effort, as follows:

- a) *eradicate* - which indicates they will receive extra effort because at their current levels, they could feasibly be eliminated altogether;
- b) *control* - which indicates they will be maintained at manageable control levels and reduced in areal extent where possible; and
- c) *contain* - which indicates their spread will be stopped and their areal extent held to existing levels.

Currently the Weed Board members agree that there is a need to plan for eradication control of purple loosestrife, perennial white top, dyers woad, leafy spurge and others listed on Table 1, that are not currently present in the County.

There are several methods that can be used to manage and suppress weeds. The current program within the County has relied heavily on spraying, with some use of biological control. The County needs to further diversify its efforts to increase its success in suppression of noxious weeds. Among the several methods available for suppressing noxious weed are the following: spraying, pulling, grubbing, mowing, and biological. It is important to reiterate that the noxious weed problem cannot be solved by the County alone. Every land owner, whether private or public, must do their part to hold the line on the spread of noxious weeds.

No matter which methods are used, the landowners and the County must do all they can to prevent these weeds from going to seed. Not only for the current growing year, but for years thereafter. This is necessary because many of these weeds have seeds that are viable for eight to fifty years once they are present in the soil. Several of the weeds spread by underground roots that are hard to kill with only one effort, so the job must go on year after year.

No longer can property owners neglect this important task. If they do, they will soon find their lands useless for grazing or other agricultural uses. Those who are developing lands for sale, etc. must also be aware of the problem and take part in its solution or they may be limited in their use of the land until they have the weed problem under control.

Methodology of Weed Control

As a County Weed Board, we strongly urge the control of weeds whenever and wherever possible. It is the responsibility of the property owner, whether it is an individual, a group, or a government agency to control the weeds on the land they own or control. There are a number of methods available to control weeds. The best method of control is to prevent the infestation in the first place. Recognizing that it is not always possible, there are many methods of control available, such as:

1. Cultural Weed Control - utilizes the principles of crop competition to exploit the crop's abilities and the weed's deficiencies. For example, alfalfa reduces the ability of annual weeds to grow.

2. Mechanical Weed Control - involves the physical destruction of a weed. Techniques involve hand pulling or hand hoeing which are practical for small infestations. Mowing is often used and proper tillage can also be effective. Minimum or no-till systems often require special equipment, but can help reduce the spread of weeds in certain cases.
3. Biological Weed Control - involves the introduction and management of selected natural enemies of a weed. Biological control is used to suppress plant populations and its efficacy is highly variable. Biological agents should be combined with other control methods to achieve optimal results.
4. Chemical Weed Control - involves the use of herbicides to help control weeds. This is a common method to control weeds, especially in large infestations. Herbicides can be effective in weed control, but they must be used properly and according to label directions. Timing of chemical application is very important. For most weeds, spraying should occur when weeds are in full growth just before flowering.

Noxious Weed Identification and Herbicide Use

Following is a list of the most problematic noxious weeds found in Carbon County. For more information about weed identification and control, contact a Carbon County Weed Control Representative or Utah State University Extension Office.

Bermuda Grass (*Cynodon dactylon* L.)

A wiry perennial with long, slender, creeping rhizomes and stolons. Leaves are generally smooth, with a conspicuous ring of white hairs at the junction of blade and sheath. Decumbent stems typically have papery leaf sheaths at each node. Decumbent stems spread laterally over the soil surface, rooting freely at lower nodes. Flowering stems are upright and bear a terminal group of 3-7 spike-like branches, usually originating in a single whorl on the ends of stems (in a configuration resembling fingers on a hand). Individual spikes are 1-2 inches long and bear 2 rows of sessile spikelets along one side of a somewhat flattened rachis.

Black Henbane (*Hyoscyamus niger* L.)

Black henbane may be annual or biennial, 1 to 3 feet tall. Leaves are coarsely-toothed to shallowly lobed and pubescent. Foliage has a foul odor. Flowers, on long racemes in axils of upper leaves, are brownish-yellow with a purple center and purple veins. Fruits are approximately 1 inch long and 5-lobed.

Canada Thistle (*Cirsium arvense* L.)

Canada thistle is a colony-forming perennial form deep and extensive horizontal roots. Stems are one to 4 feet tall, ridged, branching above. Leaves are alternate, lacking petioles, oblong or lance-shaped, divided into spiny tipped irregular lobes. Flowers are unisexual, on separate plants; flowers purple (occasionally white) in heads 2 to 3/4 inch in diameter; involucre bracts spineless. Fruits are about 1/8 inch long, somewhat flattened, brownish, with a tuft of hairs at the tip. Early spring growth appears as rosettes with spiny-tipped wavy leaves.

Dalmatian Toadflax (*Linaria genistifolia* ssp. *Dalmatica* (L.)

Dalmatian toadflax is a perennial, up to 3 feet tall, reproducing by seed and underground root stalks. Leaves are dense, alternate, entire; upper leaves are conspicuously broad-based. Flowers are borne in axils of upper leaves and are 2-lipped, 3/4 to 1 1/2 inches long with a long spur, yellow with an orange, bearded throat. Fruit a 2-celled capsule with many irregularly angled seeds.

Diffuse Knapweed (*Centaurea diffusa* Lam.)

This weed is a diffusely branched annual or short-lived perennial, 1 to 2 feet tall, stems are rough to the touch. Leaves are pinnately divided; the reduced leaves of the inflorescence are mostly entire. Flowering heads are margins of involucral bracts are divided like the teeth of a comb, and bracts are tipped with a slender spine. Achenes are brown or grayish; pappus is lacking.

Dyers Woad (*Isatis tinctoria* L.)

Dyers woad is a winter annual, biennial or short-lived perennial; 12 to 48 inches in height. Leaves of dyer's woad are alternate, simple, petiolate, bluish-green with a whitish nerve on the upper surface of the blade. The inflorescence has a flat top, petals yellow; fruit a pod, indehiscent, black or purplish brown and one-celled, containing a single seed. It has a thick tap root which may exceed 5 feet in depth. Once leaves are removed mechanically, plants will regenerate from roots.

Field Bindweed (*Convolvulus spp.*)

Field bindweed is a perennial from an extensive root system, often climbing or forming dense tangled mats. Stems are prostrate, 1 to 4 feet long. Leaves alternate, more or less arrowhead shaped, pointed or blunt lobes at the base. The flowers are bell or trumpet shaped, white to pinkish, approximately 1 inch in diameter with 2 small bracts located 1 inch below the flower. Fruit is a small, round capsule, usually 4-seeded. It is a difficult weed to eradicate because of the long, deep taproot which can penetrate the soil to a depth of 10 feet and which gives rise to numerous long lateral roots. Seeds remain viable for up to 50 years. The flowering period is from late June until frost in the fall.

Johnsongrass (*Sorghum halepense* (L.) Pers.)

Johnsongrass is a vigorous perennial plant resembling sudangrass that spreads by seed or by creeping, robust fleshy rhizomes. Erect stems are generally solid, have prominent nodes, and grow 2 to 8 feet tall. Leaf blades are flat with conspicuous mid veins, and are often as much as 1-inch wide. Ligules are short and membranous, with a terminal fringe of fine hairs. Mature inflorescence is a large open panicle bearing many awn-tipped, shiny, reddish to purple spikelets. Awns are bent and needle-like, and not all spikelets have awns.

Leafy Spurge (*Euphorbia esula* L.)

Perennial, up to 3 feet tall; reproduces by vigorous rootstalks and seed. Leaves are alternate, narrow, 1 to 4 inches long. Stems are thickly clustered. Flowers are yellowish-green, small, arranged in numerous small clusters and subtended by paired heart-shaped yellow-green bracts. Roots are brown containing numerous pink buds which may produce new shoots or roots. The entire plant contains a milky juice. Seeds are oblong, grayish to purple, contained in a 3-celled capsule, each cell containing a single seed.

Medusahead (*Taeniatherum caput-medusae* L.)

An aggressive winter annual 6 to 24 inches tall. Leaf blades more or less rolled, generally 1/8 inch wide or less. Inflorescence a long-awned spike that is nearly as wide as long. Mature awns twisted, 1 to 4 inches long, stiff and minutely barbed.

Musk Thistle (*Carduus nutans* L.)

Musk thistle is a biennial or sometimes a winter annual, which grows up to 6 feet tall. Leaves are dark green with light green midrib, deeply lobed, and spiny marginate. Leaves extend onto the stem giving a winged appearance, flower heads are terminal, solitary, 1½ to 3 inches in diameter, and usually bent over. Flowers are deep rose, violet or purple, occasionally white; they are subtended by broad, spine-tipped bracts. Fruits are 3/16 inch long, shiny, yellowish-brown with a plume of white hairlike fibers.

Purple Loosestrife (*Lythrum salicaria* L.)

Purple Loosestrife is a perennial with erect stem often growing 6 to 8 feet tall, usually associated with moist or marshy sites. Leaves are simple, entire and opposite or whorled. Rose-purple flowers having 5 to 7 petals are arranged in long vertical. Infestations can become dense and impede water flow in canals and ditches.

Herbicide control product is Rodeo.

Quack Grass (*Agropyron repens* L.)

Quackgrass is an aggressive perennial grass reproducing by seed. Quackgrass reduces productivity in crops, rangeland and pasture. Quackgrass spreads by a shallow mass of long, slender, branching rhizomes. Rhizomes are usually yellowish-white, sharp-pointed, somewhat fleshy. They are able to penetrate hard soils or even tubers and roots of other plants. Stems are erect and usually 1 to 3 feet tall. Leaf blades are 1/4 to 1/2 inch wide,

flat, pointed and have small auricles (ear-like appendages) at the junction of blade and sheath. Leaf sheaths and the upper surface of leaf blades may be thinly covered with soft hairs. Spikelets, are arranged in two long rows, born flat-wise to the stem. Florets are awnless, or with short straight awns.

Russian Knapweed (*Centaurea repens* L.)

Russian knapweed is widely established in the western U.S. This species forms colonies in cultivated fields, orchards, pastures and roadsides. Russian knapweed plants spread by black, deep growing roots which penetrate to a depth of over 8 feet. Emerging plants leaves are toothed and covered with fine hair, giving them a blue-green color. Flowers of this perennial are pinkish-purple. Bracts have pointed papery tips. Stems are erect, openly branched, 18 to 36 inches tall. Lower leaves are deeply lobed, 2 to 4 inches long; upper leaves entire or serrate, narrow to a sessile base. Cone-shaped flowering heads are 1/4 to 1/2 inch in diameter, solitary at the tip of leafy branchlet.

Russian-Olive (*Elaeagnus angustifolia* L.)

A fast-growing tree of moderate size, normally reaching heights from 10 to 25 feet. Trunks are armed with 1 to 2 inch woody thorns. Leaves are narrow, 2 to 3 inches long and covered with minute scales which give the foliage a distinctive silvery appearance. Flowers are yellow, and arranged in clusters. Fruit shaped like small olives, are silvery when first formed, but turn brown at maturity. When allowed to invade low-lying pastures, meadows or waterways it can become a serious weed problem.

Scotch Thistle (*Onopordium acanthium* L.)

Scotch thistle is a biennial that grows up to 12 feet tall. Stems have broad, spiny wings. Leaves are large, spiny, and covered with fine dense hair, giving a grayish appearance. Upper leaves are alternate, coarsely lobed; basal leaves may be up to 2 feet long and 1 foot wide. Flower has are numerous, 1 to 2 inches in diameter, bracts spine-tipped. Flowers are violet to reddish. Fruits are about 3/16 inch long, tipped with slender bristles.

Spotted Knapweed (*Centaurea maculosa* Lam.)

Spotted knapweed is a biennial or usually short-lived perennial with a stout taproot. It can have one or more stems, branched one to 3 feet tall. Basal leaves up to 6 inches long, blades narrowly elliptic to oblanceolate, entire to pinnately parted; principal stem leaves pinnately divided. Flowering heads are solitary at end of branches; involucre bracts stiff and tipped with a dark comb like fringe. The ray flowers are pinkish-purple or rarely cream-colored. Fruits are about 1/8 inch long, tipped with a tuft of persistent bristles. The flowering period extends from June to October.

Squarrose Knapweed (*Centaurea virgata* Lam. Var. *squarrosa* (Willd) Boiss.

A long-lived taprooted perennial typically reaching heights of 12 to 18 inches. Stems are highly branched, with deeply dissected lower leaves and bract-like upper leaves. Flower heads are relatively small, containing 4 to 8 rose or pink colored flowers, usually developing no more than 3 to 4 seeds per head. Bract tips are recurved or spreading, with the terminal spine longer than lateral spines on each bract. It is often confused with diffuse knapweed but differs principally in the fact that it is a true perennial, and bracts are recurved. Unlike diffuse knapweed, seed heads are highly deciduous, falling off the stems soon after seeds mature

Tall White Top -- Perennial Pepperweed (*Lepidium latifolium* L.)

This plant is a perennial, 1 to more than 3 feet in height. The leaves are lanceolate, bright green to gray-green entire to toothed, basal leaves larger than upper leaves; inflorescence a raceme. Flowers are white, in dense clusters near ends of branches, very small; fruit a silicle; seeds 2 per fruit, rounded, flattened, slightly hairy, about 1/16 inch long, and reddish-brown. Deep-seated rootstocks make this weed difficult to control. Flowering occurs from early summer to fall.

White Top -- Hoary Cress (*Cardaria spp.*)

A deep-rooted perennial up to 2 feet tall, reproducing from root segments and seeds. Leaves are blue-green in color, and lance-shaped. Lower leaves are stalked; upper leaves have two lobes clasping the stem. Plants have many white flowers with four petals, giving the plant a white, flat-topped appearance. Heart-shaped seed capsules contain two reddish-brown seeds separated by a narrow partition. Plants emerge in very early spring and have bloomed and set seed by midsummer.

Yellow Starthistle (*Centaurea solstitialis* L.)

Yellow starthistle is an annual, 2 to 3 feet tall, has rigid branching, winged stems covered with a cottony pubescence. Basal leaves are deeply lobed while upper leaves are entire and sharply pointed. Flower heads are yellow, located singly on ends of branches, and armed with straw-colored thorns up to 3/4 inch long. Fruits from ray flowers are dark-colored without bristles, while fruits from disk flowers are lighter and have a tuft of white bristles.

Yellow Toadflax (*Linnaria vulgaris* Mill.)

Yellow toadflax is perennial, 1 to 2 feet tall, reproducing by seed and underground rootstocks. Leaves are pale green, numerous, narrow, pointed at both ends, 2 ½ or more inches long. Flowers are 1 inch long with a bearded, orange throat. Fruit is round, 1/4 inch diameter, brown, 2-celled with many seeds. Seeds are dark brown to black, 1/12 inch in diameter, flattened with a papery circular wing.

6.0 AUTHORITY AND ENFORCEMENT OF NOXIOUS WEED MANAGEMENT PLAN

Authority

The Utah Noxious Weed Act (Title 4, Chapter 17, Rule R68-09) provides for the control and management of noxious weeds in Utah. Private property owners, municipalities, and state agencies are all subject to the provisions of the Utah Noxious Weed Act. Federal agencies are subject to the provisions of the Federal Noxious Weed Act of 1974 (P.L. 93-629) as amended in 1990 (Section 15, Management of Undesirable Plants on Federal Lands). Under the 1990 amendment to the Federal Noxious Weed Act, federal agencies are directed to enter into agreements with appropriate state and local agencies to coordinate the management of noxious weeds. All land owners/managers within the boundaries of Carbon County are also subject to any applicable Carbon County policies and ordinances.

Enforcement

Enforcement of the Carbon County Weed Management Plan will be carried out through the procedures established in the Utah Noxious Weed Act. Under the Utah Noxious Weed Act, County Weed Control Boards, County Weed Supervisors and Field Representatives of the Utah Department of Agriculture's Division of Plant Industry have authority for the enforcement of the provisions of the act. The Specific duties of each of these parties will be as outlined in the Handbook for County Weed Boards.

Before May 1, each year the county weed control board is to post a general notice of the noxious weeds within the county in at least three public places in the county and publish the notice in a newspaper or other publication of general circulation on at least three occasions.

The Utah Noxious Weed Act requires that all land owners or people in possession of property be responsible for the control of noxious weeds on their property. Specific provisions of this law call for the control and prevention of the spread of noxious weeds by property owners or 'people in possession of property.

The Carbon County Weed Control Board expects that all landowners and land managers take prompt action to control and prevent the spread of the noxious weeds located on their property. This action will be required each year as long as the infestation exists, Section 4-17-7(2), (3) of the Utah Weed Act states:

- (2) "If the County weed control board determines that particular property within the county requires prompt and definite attention to prevent or control noxious weeds, it shall serve the owner or the person in possession of the property, personally or by certified mail, a notice (Appendix A) specifying when and

what action should be taken on the property. Methods of prevention or control may include definite systems of tillage, cropping, use of chemicals, and use of livestock."

(3) "An owner or person in possession of property who fails to take measures to prevent and control the spread of noxious weeds in the served notice, is maintaining a public nuisance."

For 2002, the County will continue to provide assistance to private land owners who are willing to take appropriate action by entering into a written agreement with the County (Appendix B) outlining specific responsibilities of the land owner and of the County. The majority of the financial burden for the actions prescribed in this agreement must be born by the land owner, with any expenditure for chemicals by the County being approved by the Weed Board. In certain cases where extensive infestations exist, County assistance may be extended through 2004 for land owners who have shown cooperation by adhering to the terms of the signed agreement. Part of the rationale behind this assistance, is that many of the land owners will need sufficient time to acquire certification for herbicide use and therefore the land owners should be appropriately encouraged to become certified.

By the year 2004, the County's role in controlling noxious weeds on private and public lands will be diminished to that prescribed in the Utah Noxious Weed Act and the land owners will be solely responsible for controlling noxious weeds on their respective properties.

Any property owners who fail to take action in controlling noxious weeds on their property will be served a written notice declaring their property a public nuisance as outlined above. If further action is needed, then the procedures for taking corrective action on that property will be carried out as outlined in section 4-17-8.5 of the Utah Noxious Weed Act. Section 4-17-8 (1), (2) of the Utah Noxious Weed Act, states:

(1) "If the owner or person in possession of property fails to take action to control or prevent the spread of noxious weeds within five working days after they declare the property a public nuisance, the county may, after reasonable notification, enter the property without the consent of the owner or the person in possession, and perform any work necessary, consistent with sound weed prevention and control practices, to control the weeds."

(2) "Any expense incurred by the county in controlling the noxious weeds is paid by the property owner of record or the person in possession of the property, as the case may be, within 90 days after receipt of the charges incurred by the county. If not paid within 90 days after notice of the charges, the charges become a lien against the property and are collectible by the county treasurer at the time general property taxes are collected."

Any property owner who is served with a notice to control noxious weeds may appeal the notice through the procedures outlined in section 4-17-8.5 of the Utah Noxious Weed Act.

Hearing before County Weed Board - appeal of decision to Board of County Commissioners Judicial Review:

1 - Any person served with notice to control noxious weeds may request a hearing to appeal the terms of the notice before the County Weed Control Board within 10 days of receipt of such notice and may appeal the decision of the County Weed Control Board to the Board of County Commissioners.

2. Any person served with notice to control noxious weeds who has had a hearing before both the County Weed Control Board and the Board of County Commissioners may farther appeal the decision of the Board of County Commissioners by filing written notice of appeal with court of competent jurisdiction.

The treatment of articles capable of spreading noxious weed will be as outlined in R68-09-03 and R68-09-04 of the Rules pertaining to the Utah Noxious Weed Act.

Pesticide Use

Any person who applies any type of pesticide product in Utah is subject to the requirements of the Utah Agricultural Code, specifically the Utah Pesticide Control Act. The application of any pesticide, including herbicides as part of weed control efforts in Carbon County will be made in compliance with the Federal, Insecticide, Fungicide, and Rodenticide Act as amended and the Utah Pesticide Control Act as amended (Title 4, Chapter 14, Rule 68-07). All pesticide applicators will be properly licensed as required by the Utah Pesticide Control Act. Each application of any restricted use pesticide product will be recorded according to the pesticide record keeping requirement as specified in R68-7-8 of the Utah Pesticide Control Act. All pesticide applicators will be properly trained on the use of pesticide products. This training is to include calibration, label reading, personal protective equipment, and safety.

7.0 RECORD KEEPING

Purpose

The primary goal of our record keeping system is to collect information in order to document the progress and success of noxious weed control in Carbon County. Our record keeping system will track noxious weed management methods, record necessary environmental information at management sites, trace the use of funds and manpower, provide information to validate and build the program, and document the progress and success of noxious weed control.

Description of Records

Inventory

At the first of each new year, an inventory will be conducted by the Weed Supervisor to determine the amount of herbicide left over from the previous year. The Weed Supervisor will then determine the herbicide needs for the upcoming season. An invitation for bids will be sent out to herbicide suppliers. Copies of returned bids will be kept on file for five years.

General Notice

A general notice of the noxious weeds within Carbon County will be posted each Spring, before May 1 in three public places and in the newspaper on three occasions. This notice will be filed as part of the requirements of section 4-17-7 of the Utah Noxious Weed Act.

Infestation Report

All infestations of noxious weeds found in the County will be recorded on a *Noxious Weed Infestation Report* (Appendix A). This form will identify the location of the infestation, identify the property owner or manager of the property, monitor the control efforts of each particular noxious weed infestation, and record each attempt to notify the property owner of their weed problem. The first attempt to notify individuals will be through a personal visit by the Weed Supervisor. Subsequent attempts may be made through phone calls. The last resort to notify property owners/managers will be through the mail.

Weed infestations that do not get prompt and appropriate control measures, following procedures listed in the enforcement section, will be turned over to the County Weed Board for a decision on what to do next. If deemed necessary by the County Weed Board, the property owner or manager will be served an individual notice to control their weed infestation. Whenever an individual notice is to be served, it will be the Weed Supervisor's policy to take a picture of the infestation. The picture will then be attached to the back of the Infestation Report Form.

Noxious Weed Alert

The *Noxious Weed Alert* (Appendix B) will be administered to individuals notifying them of the existence of noxious weeds on their property. Failure to notify County Weed Representative within five days of intent to control or prevent the spread of noxious weeds may result in the issuance of a Notice to Control Noxious Weeds.

Notice To Control Noxious Weeds

The *Notice to Control* (Appendix C) will be used by the Carbon County Weed Board to notify property owners who have not cooperated with efforts to control noxious weeds on their property. This will serve as a formal notice to property owners declaring their property a public nuisance. A specified amount of time will be given to gain compliance with the law pertaining to the control of noxious weeds. For property owners/managers who get served this formal notice, a penalty as determined by the Carbon County Commissioners and Carbon County Weed Board will be assessed.

Noxious Weed Management Plan

In cases where the infestation is extreme and the landowner is willing to enter into a cooperative agreement with Carbon County, the *Noxious Weed Management Plan* (Appendix D) will be used. As long as any landowner continues to work toward fulfilling his/her obligations contained in said agreement, the Carbon County Weed Board will continue working with that landowner toward solving his/her noxious weed problem.

Billing Record

A *Billing Record* (Appendix E) will be kept for all jobs that the County Weed Department completes. The County Weed Supervisor will prepare this record and it will be filed, stored, and maintained in the County Clerk's Office.

Daily Noxious Weed Control Record

Each work day the Weed Supervisor will maintain a *Daily Noxious Weed Control Record* (Appendix F). This record will identify the following:

1. Locations of weeds treated;
2. Chemicals used;
3. Rate applied;
4. Purpose of chemical application;
5. Acres treated;
6. Dates and times of treatments applied;
7. EPA registration numbers;
8. A total amount of chemical used;
9. Rate charged; and
10. Billing number of each job completed.

This record will maintain compliance with the Federal Insecticide, Fungicide, and Rodenticide Act as amended and the Utah Pesticide Control Act as amended (Title 4, Chapter 14, Rule 68-07). The information maintained in this record will prove to be invaluable in comparing and monitoring the progress of County weed control efforts as well as maintaining compliance with federal and state regulations. Those who apply the various control measures will maintain this record.

Annual Progress Report

An Annual Progress Report (Appendix G) will be generated each year by tallying the information recorded in the *Daily Noxious Weed Control Record*. This report will show the annual progress on the weed infestation found in Carbon County.

The only records that will be kept on a daily basis will be the Infestation Report, the Daily Log, and the Daily Noxious Weed Control Report. The only other form that is actually a record is the Annual Progress Report.

Appendix A

Noxious Weed Infestation Report

**NOXIOUS WEED INFESTATION REPORT
CARBON COUNTY**

Date form first filed _____

Name of Landowner/Manager

Mailing Address _____ Phone _____

Weed Infestation Location _____

Date first contacted _____

Method of contact (circle one) **Personal Visit** **Telephone** **Mail**

Date of second contact _____

Method of contact (circle one) **Personal Visit** **Telephone** **Mail**

Dates of control measures _____

Date Reviewed by Weed Board _____ Date official mailed (if necessary) _____

Work order # _____

NOXIOUS WEEDS PRESENT

On the back of this form, draw a map describing the location of each noxious weed infestation.
Weed Control Results and Comments

BOARD OF COUNTY COMMISSIONERS
Carbon County, Utah

Appendix B

Noxious Weed Alert

Carbon County Maintenance & Abatement

Weed Control Department

120 E. Main

Price, Utah 84501

435-636-3270

NOXIOUS WEED ALERT

A noxious weed infestation of _____
(Name of Noxious Weed(s))

has been identified on the property owned by _____,
(Landowner's Name)

located in Township, Range, and Section _____

Address: _____ City: _____ Zip: _____

Pursuant to Title 4, Chapter 17 of the Utah Noxious Weed Act, an owner or person in possession of property who fails to take action to control or prevent the spread of noxious weeds is maintaining a public nuisance.

Failure to take action to control or prevent the spread of noxious weeds may result in the issuance of a notice to control noxious weeds; whereby the owner or person in possession of the property will be required to take action within five working days after the property is declared a public nuisance.

For guidance in developing and implementing an eradication and control plan contact Mikel Johnson (County Weed Supervisor) at 435-636-3270 within five day(s) of this alert in order to avoid the issuance of a notice to control.

Dated: _____, 20____

Carbon County Weed Department Representative

Appendix C

Individual Notice to Control Noxious Weeds

Carbon County Maintenance & Abatement
Weed Control Department
120 E. Main
Price, Utah 84501
435-636-3270

NOTICE TO CONTROL NOXIOUS WEEDS

A noxious weed infestation of _____
(Name of Noxious Weed(s))

has been identified on the property owned by _____,
(Landowner's Name)

located in Township, Range, and Section _____,

Address: _____, City: _____, Zip: _____

Pursuant to Title 4, Chapter 17 of the Utah Noxious Weed Act, an owner or person in possession of property who fails to take action to control or prevent the spread of noxious weeds is maintaining a public nuisance.

If the owner or person in possession of property fails to take action to control or prevent the spread of noxious weeds within five working days after the property is declared a public nuisance, the county may, after reasonable notification, enter the property without the consent of the owner or the person in possession, and perform any work necessary, consistent with sound weed prevention and control practices, to control the weeds. Any expense incurred by the county in controlling the noxious weeds is paid by the property owner of record or the person in possession of the property, as the case may be, within 90 days after receipt of the charges incurred by the county. If not paid within 90 days after notice of the charges, the charges become a lien against the property and are collectible by the county treasurer at the time general property taxes are collected.

You must contact Mikel Johnson (County Weed Supervisor) at 435-636-3270 for guidance in developing and implementing an eradication and control plan, within five days of the date of this notice.

Dated: _____, 20____
Carbon County Weed Department Representative

APPEAL

Pursuant to Title 4, Chapter 17, Section 8.5 of the Utah Noxious Weed Act, any person served with notice to control noxious weeds may request a hearing to appeal the terms of the notice before the county weed control board within 10 days of receipt of such notice and may appeal the decision of the county weed control board to the board of county commissioner.

Appendix D

Noxious Weed Management Plan

Carbon County Maintenance & Abatement

Weed Control Department

120 E. Main

Price, Utah 84501

435-636-3270

NOXIOUS WEED MANAGEMENT PLAN

Name: _____

Address: _____ Phone: _____

Noxious Weed(s): _____

Goal:

Prevent Yes/No

Eradicate Yes/No

Control Yes/No

Method of Weed Control:

Cultural Yes/No

Mechanical Yes/No

Biological Yes/No

Chemical Yes/No

Action Plan: _____

County Follow Up: _____

Landowner Signature

Date

Carbon County Weed Supervisor

Date

Appendix E

Billing Record

INVOICE

CARBON COUNTY AUDITOR

120 East Main Street
Price, Utah 84501

Date: _____

TO:

INVOICE

All Items Must Be Entered In Detail On This Voucher

Date	Description	Unit Price	Amount
		<i>Total</i>	

STATE OF UTAH, COUNTY OF CARBON - ss; The undersigned, being first duly sworn, on oath says:
That the above account is correct, and the amount claimed is justly due, and that neither the whole nor any part
of the same has been paid by the State, City, Town, or by any individual.

Signed _____ Deputy Clerk

Appendix F

Daily Noxious Weed Control Record

Business Name	Applicator	License Number
Address	Address	
Telephone	Telephone	

[illegible]

Appendix G

Annual Progress Report

ANNUAL PROGRESS REPORT OF COUNTY NOXIOUS WEED CONTROL PROGRAM

County _____ Year _____

1. Name of person who filled out this report:

Name	Address
------	---------

2. County Commissioner in charge of Weed Control:

Name	Address
------	---------

3. Members of County Weed Board:

Chairman	Address
----------	---------

5. County Weed Supervisor:

Name	Address
------	---------

Office Phone # _____ Home Phone # _____

6. County Spray Operators (other than Weed Supervisor):

Name	Address
------	---------

7. Number of Weed Board Meetings held during the year: _____

8. Weeds declared Noxious by the County:
(NOT STATE NOXIOUS WEEDS)

Active Control Program:

YES _____ NO _____

YES _____ NO _____

YES _____ NO _____

YES _____ NO _____

YES _____ NO _____

9. County Weed Control Budget: Past Year: \$ _____ Next Year: \$ _____

10. Check the Noxious Weeds listed below that are found in the county. Please indicate if the county has an active Control Program directed at these weeds. Indicate the progress of the control of these weeds by using:

NC for No Change I for Increasing Infestation D for Decreasing Infestation

FOUND IN COUNTY	ACTIVE CONTROL PROGRAM	INFESTATION (NC, I, D)
A. Bermuda grass (Not Noxious in Washington County)	YES _____ NO _____	_____
B. Bindweed (Morning-Glory)	YES _____ NO _____	_____
C. Board-leaved Peppergrass (Tall Whitetop)	YES _____ NO _____	_____
D. Canada Thistle	YES _____ NO _____	_____
E. Dyers Woad	YES _____ NO _____	_____
F. Johnson Grass	YES _____ NO _____	_____
G. Leafy Spurge	YES _____ NO _____	_____
H. Musk Thistle	YES _____ NO _____	_____
I. Quackgrass	YES _____ NO _____	_____
J. Russian Knapweed	YES _____ NO _____	_____
K. Scotch Thistle	YES _____ NO _____	_____
L. Whitetop	YES _____ NO _____	_____
M. Squarrose Knapweed	YES _____ NO _____	_____
N. Diffuse Knapweed	YES _____ NO _____	_____
O. Yellow Star-thistle	YES _____ NO _____	_____
P. Medusahead Rye	YES _____ NO _____	_____
Q. Spotted Knapweed	YES _____ NO _____	_____

1. Does the county spray crop ground for farmers? Yes _____ No _____
2. Does the county do spraying on other private property? Yes _____ No _____
- a. Noxious weeds only _____ b. Any type of weed _____ c. Any location _____
- d. Other _____ Explain: _____
3. How many official individual Notices to Control Noxious Weeds were sent to private landowners during the past year by the Weed Board/Supervisor? number: _____
4. Indicate what progress was made during the previous year in controlling noxious weeds in the following areas of concern:
- | | <u>Poor</u> | <u>Fair</u> | <u>Good</u> | <u>Excellent</u> |
|--|-------------|-------------|-------------|------------------|
| 1. County Roads | _____ | _____ | _____ | _____ |
| 2. Farmlands | _____ | _____ | _____ | _____ |
| 3. State Highways | _____ | _____ | _____ | _____ |
| 4. Cities | _____ | _____ | _____ | _____ |
| 5. Railroads | _____ | _____ | _____ | _____ |
| 6. Federal Lands | _____ | _____ | _____ | _____ |
| 7. State Lands | _____ | _____ | _____ | _____ |
| 8. Contaminated Article
(hay, soil, machinery, livestock, etc.) | _____ | _____ | _____ | _____ |
| 9. Waterways | _____ | _____ | _____ | _____ |
5. NEW AND INVADING WEEDS: Please fill in the information as completely and accurately as possible. If you are not sure of the correct information please use NS (Not Sure) in the blanks.

<u>NEW & INVADING WEEDS</u>	<u>FOUND IN COUNTY</u>	<u>NUMBER PATCHES</u>	<u>ACRES INFESTED</u>
A. Black henbane	YES _____ NO _____	_____	_____
B. Dalmation toadflex	YES _____ NO _____	_____	_____
C. Goatsrue	YES _____ NO _____	_____	_____
D. Jointed goatgrass	YES _____ NO _____	_____	_____
E. Water hemlock	YES _____ NO _____	_____	_____
F. Poison hemlock	YES _____ NO _____	_____	_____
G. Yellow nutsedge	YES _____ NO _____	_____	_____
H. Wild proso millet	YES _____ NO _____	_____	_____
I. Yellow toadflax	YES _____ NO _____	_____	_____

- | | | | |
|--------------------------|------------------|-------|-------|
| K. Silverleaf nightshade | YES ____ NO ____ | _____ | _____ |
| L. Velvetleaf | YES ____ NO ____ | _____ | _____ |
| M. St. Johns Wart | YES ____ NO ____ | _____ | _____ |
| N. Camel thorn | YES ____ NO ____ | _____ | _____ |
| O. Purple starthistle | YES ____ NO ____ | _____ | _____ |

6. What are the most critical noxious weed control problems in your county?

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

7. What SPECIFIC weed control measures are being planned for the coming year?

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

18. Please describe any situations or circumstances that you think the Department of Agriculture should be aware of concerning noxious weeds in your county. Indicate areas where you would like assistance from the Department in solving problems in your county weed program.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.