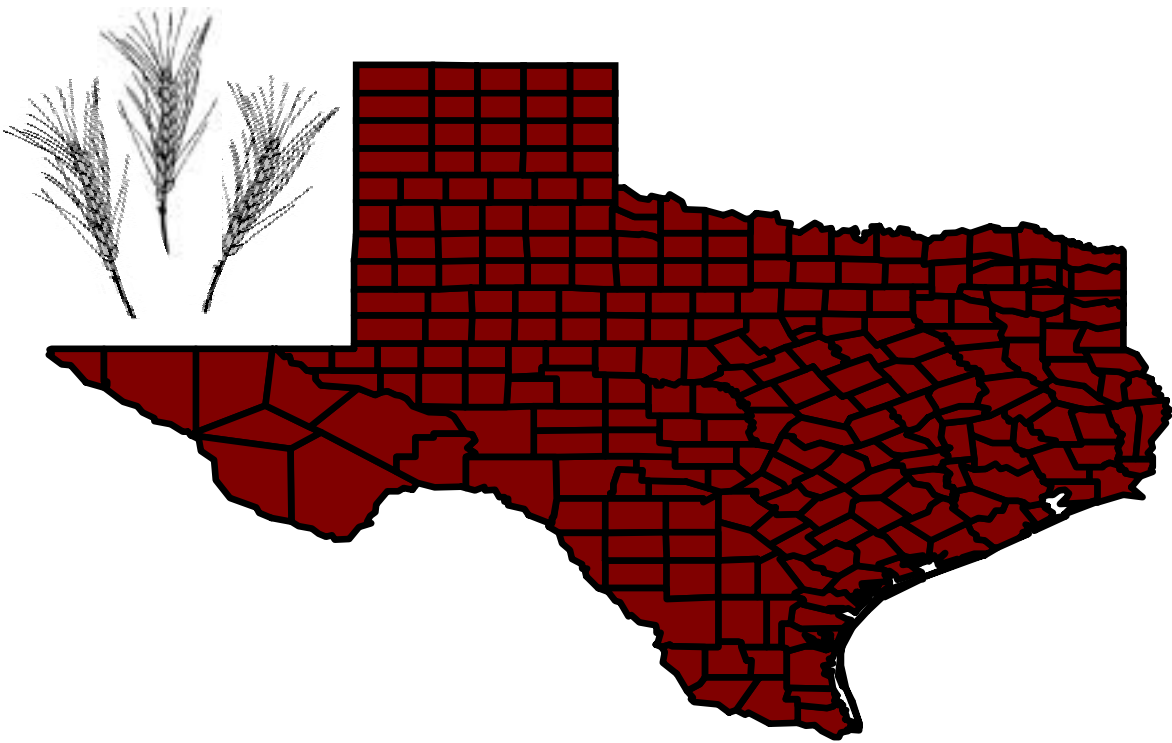


Coping with Karnal Bunt in Texas



**Todd Baughman
Stan Bevers
Bill Pinchak**

Texas A&M Research & Extension Center - Vernon

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Dr. Todd Baughman, Assistant Professor and Extension Agronomist, Vernon, Texas
Stan Bevers, Associate Professor and Extension Economist, Vernon, Texas
Dr. Bill Pinchak, Associate Professor and Range Nutritionist, Vernon, Texas

APHIS is charged with controlling the spread of karnal bunt through a systems approach that recognizes the need for protecting the wheat economy of the Southern Plains. All fields in regulated counties will be regulated positive until in-field wheat grain sampling occurs. APHIS intends to change from county wide regulation to specific areas based on the distribution and density of bunted kernel fields in the 2002 harvest. A quarantine radius yet to be determined will be established around infected fields to minimize the spread of spores. The only method to assure that karnal bunt does not become established in a particular field is to not plant wheat or triticale.

Crop alternatives for karnal bunt infected areas include any potential crop with the exception of wheat (this includes hard, soft, winter, spring and durum wheats) and triticale. Wheat and triticale may still be planted in the quarantined areas but increase the potential for re-infection. Possible crop alternatives include other small grains (barley, oat, or rye), grain sorghum, cotton, ryegrass, sudangrass/forage sorghum, and/or perennial grass.

If a producer decides to plant wheat or triticale one of the most important management steps that can be performed is to purchase good, quality seed and to make sure that the seed is treated with one of the APHIS approved fungicide programs. If there is any question regarding potential karnal bunt infection of this seed, it can be tested through TDA and the Texas Agricultural Experiment Station. When treating seed, consider using an on farm seed treater or other reliable means to get thorough coverage of each seed. While a producer is not required to treat seed that was grown outside of the quarantined area, it is still a very good idea to treat this seed. Potential contamination can still come from the handling and planting of the seed, even if the seed tested negative for karnal bunt kernels and spores.

Karnal bunt infection only occurs in a specific set of weather conditions, which are not common to many of the western areas of Texas. The disease requires cool, wet weather during the bloom stage. As wheat blooms over a fairly short period of time (no more than about 8 to 10 days for a given field), producers have the opportunity to observe weather conditions and adjust the end use of a wheat crop should the field be in an infected area and weather patterns are suspect. If a cool, wet period occurs during the bloom stage, growers might alter management plans, and harvest the crop for hay or silage before the soft dough stage.

Small grain crop alternatives include barley, oat, and rye. While all of these can potentially produce good forage and grain yields, there are some problems with each. Winter hardiness of barley and oat is less than most of our common wheat varieties. This is especially true with oat. There is a wide range of winter hardiness between oat varieties, with Dallas having some of the best winter hardiness and Coronado and TAMO 397 having some of the poorest. Barley and rye may produce excellent early forage, but will mature faster, providing less late season grazing than our better wheat varieties. Harvesting can also be a potential issue with these three alternatives

from either a shattering and/or lodging problem. Potential volunteer weed problems must also be considered if the field is ever returned to wheat production for grain. Planting rates (in pounds per acre) for barley or oat will be comparable to wheat while the planting rate for rye will be approximately 80-85% of the planting rate of wheat. Therefore, if a producer traditionally plants 60 lbs/A of wheat he should plant 60 lbs/A of barley or oat, and 50 lbs/A for rye. Comparing planting rates to wheat should be based on a pounds per acre and not bushels per acre since bushels weights will be different for barley (48), oat (32), and rye (56). Planting dates, fertility, and other management practices for all three small grains options will be similar to wheat. The exception is oat which may also be planted later in the year than wheat, barley, and rye. Give careful consideration to varietal selection, as there are many varieties of barley, oat, and rye that have been developed for other regions of the country but may not be adapted to your area.

Annual and perennial forages may be an option, but cost of establishment and the length of time before production will allow for economical grazing could be an issue. Many of the perennial forages will not have established enough growth to be grazed until the following fall. A perennial forage also has to be looked at as a long-term investment due to the cost of seed and the grazing management that these types of grasses require for satisfactory production. Ryegrass is one potential option, but the eastern side of the Rolling Plains is probably as far west as ryegrass will perform well year in and year out. Also, once established ryegrass can be a potential major weed problem that is very expensive to control when the field is returned to wheat production for grain. If ryegrass is considered, planting rate should be 30 lbs/A for early forage production. To obtain a good stand of ryegrass plant on a well prepared seedbed, broadcasting the seed, and use a drag or harrow for shallow incorporation. Perennial cool-season grasses should be planted at a rate of approximately 15 lbs/A (will vary by species) with a specialized grass-seed drill into a well prepared seedbed. Care should be taken with all small seeded grasses to insure that the crop is not planted too deep.

Little or no information is available on the performance of many of these crops. However, the following cultivars may have the most potential:

Barley: Post 90, TAMBAR 500, TAMBAR 501

Oat: Dallas, Harrison, Nora, Walken

Rye: Bates, Elbon, Maton, Oklon

Ryegrass: Jackson, Marshall, TAM 90

Perennial Cool-Season Grasses: Crested Wheatgrass, Jose Tall Wheatgrass

Various summer crops are also an option, such as cotton, grain sorghum, sudangrass/forage sorghum, guar or bermudagrass. There may also be other crop alternatives that will do well in specific areas of the state. In deciding what crop to plant, consideration should be given to what the final market is for that crop. Contact your local grain elevator or grain merchandiser prior to planting the crop to assure you will have a market for the crop.

For information on potential cost of production, yield potential, and crop program issues for many of these crops see Table 1. Table 1 provides a summary of wheat production for grain and grazing as well as some alternative crops to consider. These include oats, rye, barley,

grain sorghum, and cotton. For each crop, the table provides an average yield, whether there is a farm loan program available for the crop, and an estimate of production cost associated with growing each crop. These crop expense estimates and yields (developed from Rolling Plains information) are not intended to represent any one individual operation. Producers should use these estimates to develop his or her own cash flow situation. As always, a producer should check with their local FSA and crop insurance agent for any changes in regulations relating to farm program policies or crop insurance policies.

Cattle grazing can also be considered an alternative. However, cattle will need to be managed as if all fields were infested. Cattle grazing fields in these counties must be managed to control increased infestations. Karnal bunt attacks the wheat flower and becomes transmissible through cattle consumption of wheat grain at soft dough or later stages of maturity. Soft dough generally occurs in late April to May 1 depending on variety and growing conditions.

Cattle pulled off before the soft dough stage of development have no restrictions on movement. These cattle do not have to graze alternative pasture types or be fed for five days.

Cattle pulled off after soft dough stage of development are assumed to come from infested fields within the regulated area. These cattle must be grazed on non-wheat or non-triticale forages or confinement fed for at least five days prior to shipment to ensure passage of spores from the digestive tract. Cattle moved to these alternative pastures two weeks prior to shipping will minimize shrink impacts on final sale weight. Known infested fields should be planted to alternative forages for grazing and grain systems or graze out strategies. Planting oats for example on known infested fields and then bringing cattle from other fields to graze at least five days prior to shipment will concentrate spore excretion in feces and minimize spore spread to uninfested fields.

Hay harvested prior to soft dough stage has a minimum probability for karnal bunt positive grain being present and movement of this hay is not limited. However, all wheat fields in regulated areas are assumed infested until proven otherwise. The problem is field designation will probably occur after the optimal hay harvest time. Hay harvested after the milk stage within regulated areas must be sampled. Producers that harvest late hay should leave enough standing wheat to get a 4 pound sample of grain for karnal bunt testing. If the field or bales cannot be tested because of inadequate grain availability the hay will be considered from an infested field. Hay from infested fields can only be shipped out of the regulated area to facilities that have compliance agreements approved by APHIS. This hay may also be consumed on farm in non-cultivated areas to limit spore infestations.

Terminating grazing prior to May 1 should result in minimal loss in cattle gains since wheat quality and quantity diminishes rapidly after this date. Table 2 provides a summary of breakeven grazing lease rates per pound of gain. This table includes various scenarios for cattle gain per acre and cattle and wheat cost per acre. Table 2 does not include the income from wheat if cattle are pulled off early and the wheat harvested for grain. Table 1 does not include the cost of care of the animals or additional cattle cost to improve animal performance. Therefore, these cost for each individual producer should be added to get a final overall cost for cattle and wheat.

Table 1. Alternative Crop Summaries

	Wheat for Grain	Wheat for Grazing	Oats	Rye	Barley	Sorghum	Cotton
Average Yield ¹	28 Bushels		40 Bushels	20 Bushels	38 Bushels	1,900 Pounds	260 Pounds
Farm Program Loan Available	Yes, Archer - \$2.69 Baylor - \$2.69 Throck - \$2.60 Young - \$2.60	n/a	Yes, \$1.29	No	Yes, \$1.90	Yes, Archer - \$3.25, Baylor - \$3.20, Throck - \$3.30, Young - \$3.25	Yes, \$0.5192
Expected Production Costs							
Seed	\$11.75	\$11.75	\$7.88	\$14.00	\$9.75	\$3.68	\$14.52
Fertilizer	19.38	19.38	15.94	10.31	19.38	12.30	9.00
Chemicals							27.08
Misc.	3.25	3.25				4.50	9.00
Fuel & Lube	5.24	5.24	5.24	5.24	5.24	2.11	3.33
Repairs	6.25	6.25	6.25	6.25	6.25	6.25	6.25
Interest	2.68	2.74	1.93	2.16	2.53	0.93	2.30
Harvesting	17.68		19.50	15.60	17.68	20.54	50.50
Total Production Costs	\$66.23	\$48.61	\$56.74	\$53.56	\$60.83	\$50.31	\$125.81
Fixed Costs	\$46.02	\$46.02	\$46.02	\$46.02	\$46.02	\$46.02	\$46.02
Total Costs	\$112.25	\$94.63	\$102.76	\$99.58	\$106.85	\$96.33	\$171.83

1. Average yields for wheat, grain sorghum and cotton are based on the 1995-1999 county average yields reported by Texas Agricultural Statistics Service. For oats, barley and rye, the average yields are based on 1982 -1986 county averages.

Table 2. Net Grazing Lease per Pound Required to Cover Production Costs

	Wheat and Cattle Production Costs per Acre				
Cattle Gain per Acre	\$70.00	\$80.00	\$90.00	\$100.00	\$110.00
100	0.70	0.80	0.90	1.00	1.10
200	0.35	0.40	0.45	0.50	0.55
300	0.23	0.27	0.30	0.33	0.37
400	0.18	0.20	0.23	0.25	0.28

All educational programs and information of the Texas Agricultural Experiment Station and Extension Service are available to all people regardless of socioeconomic level, race, color, religion, sex, age, disability, or national origin.