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BIRD DEPREDATION ON RICE AND OTHER GRAINS IN ARKANSAS

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In Arkansas, blackbirds are responsible for appreciable damage to rice, grain sorghum, oats, wheat, rye, and corn. By far, the greatest damage is to rice. As is shown in the following table, the losses to rice producers amounted to an estimated $3,049,055 in 1968, the last year that a survey was made. Nearly two-thirds (63%) of this loss was to standing rice destroyed and to the cost of bird control measure in standing rice. The remaining losses ($2,140,320) are to seeding or to efforts to control bird depredations to new seeding, (see Table 1).

Blackbird damage to grain sorghum and corn was mostly to standing grain; that to oats, wheat and rye, to seeding, although there is occasional damage to standing grain. Additional problems are caused by blackbirds in feed lots. The total losses to Arkansas agricultural producers due to blackbirds in 1968 was about $3,500,000.

Bird damage in a specific locality and on specific crops seems to vary in intensity from year to year. However, surveys during the past ten years suggest a fairly consistent level of total damage state-wide. The damage in 1968-and I believe in 1969—was somewhat lighter than we have come to expect from past experience. (See table 2.)

On a per acre basis the damage in 1968 showed a considerable decline when compared to previous years. A part of this decline is probably a temporary situation. Some of the decline in losses to rice and grain sorghum, however, are due to changes in varieties, such as development of bird-resistant milo, and to changes in cultural methods. Further appreciable reductions due to changes in these factors seem unlikely, (see table 3.)

Since rice producers sustain the greatest losses to birds, they have generated the greatest demand for bird control programs. Three species are responsible for most bf the damage to rice. They are the red-winged blackbird, common grackle and brown-headed cowbird. These birds have created problems for rice producers since the first successful rice crop was grown near Lonoke, Arkansas, in 1904.

Rice harvest, until the appearance of the combine, consisted of binding, shocking and threshing. Shocks might stand in the field on into December waiting for the thresher. Losses of grain to migrating birds from the north were dramatic. In those days ducks also took their toll of the crop. Even after the combine appeared, the grain had to remain in the field until dry enough to store, and northern birds often caused tremendous damage before the grain could be harvested.

In 1944, the Arkansas Rice Growers Cooperative Association constructed one of the industry's first commercial drying and storage facilities. This method of combining and drying rice was so successful that by 1948, 90% of Arkansas' rice crop was being handled in this manner. Today all of it is.

As a result of this change in harvesting methods, coupled with adoption of new varieties, the length of time that the rice crop is exposed to depredating birds has been

Table 1. Arkansas State Summary of Estimated Bird Damage (1968)
Blackbird Damage

	Total Damage	Acres Harvested	Damage Per Acre
Rice	$3,049,055.*	573,240	$5.32
Grain Sorghum	137,807.	50,000	2.76
Oats	5,414.	68,000	.08
Wheat	197,504.	568,000	.35
Rye	2,481.	7,500	.33
Corn (for grain)	9,437.	52,000	.18
Feed Lots	166,570.		
Total Blackbird Damage	$3,568,268.		

*Damage to Rice includes:

Damage to standing rice prior to harvest—$1,469.173.
Cost of bird control in rice fields = $439,562.
2,690 acres seeding, damaged and replanted @ $12.00/acre = $32,280. Seeding rate increased ¼-1 bushel/acre on 79,560 acres to allow for bird damage—59,010 bushels @ $4.00/bushel = $236,040.
Seed treated with Aldrin, mostly for bird control, @ 40¢ bushel = $535,800. Poor stand due to bird damage to sprouting rice on 31,024 acres resulting in an estimated loss in yield of rice valued at $336,200.
(Average value of standing rice ready to harvest estimated to be $1.75 per bushel.)

Table 2. Arkansas State Summary of Estimated Blackbird Damage
Total Damage

	1958	1963	1966	1968
Rice	$3,788,941.	$4,217,712.	$2,825,895.	$3,049,055.*
Grain Sorghum	420,029.	94,830.	1,200,325.	137,807.
Oats		122,884.	109,694.	5,414.
Wheat	542,711.	350,750.	654,069.	197,504.
Rye		23,959.	7,688.	2,481.
Corn (for grain)	292,889.	139,399.	97,997.	9,437.
Feed Lots	249,976.	396,989.	337,030.	166,570.
Total	$5,625,239.	$5,346,521.	$5,232,698.	$3,568,268.

*The damage to standing rice plus the cost of bird control of rice fields totaled $1,908,735 or an average of $3.33 per acre.

greatly reduced. For all practical purposes, Arkansas' rice is in the bin by the end of October, and the present period of bird depredation to standing rice is August 15 to October 31. Waterfowl no longer are a problem. Also, the segment of the continental blackbird population that attacks Arkansas' rice has changed as is indicated in the following table (Fankhauser, 1968). (See Table 4.)

As we can see, banding data suggests that only a small percent of the birds that damage Arkansas rice are from north of Arkansas, and field observations indicate that only those fields still unharvested after October 20-25 are subjected to appreciable damage from birds migrating into the state from the north. Therefore, the segment of the continental blackbird population that rice producers in Arkansas must be more concerned with are our own breeding birds.

During the period that rice has been grown in Arkansas, changes in the number and composition of the resident blackbirds has occurred. Many thousands of acres of timbered land in the delta region have been cleared reducing, to some extent, the amount of grackle nesting habitat and greatly increasing the redwing nesting habitat. During the 18 year period, 1951-1969, 2,501,644 acres of forested lands in the delta region were cleared (Sternitzke, 1960; Hedlund and Earles, 1969). As a result, we have added substantially to our population of summer resident red-winged blackbirds and, as any rice producer will tell you, these are the most destructive kind. The following tables give an estimate of the possible damage that redwings, grackles and cowbirds can do in rice field. (See Tables 5, 6 and 7.)

Few rice producers object to feeding a thousand birds and most producers do not sustain unbearable losses. However, due to the flocking tendencies of these birds losses to some producers are very severe, as you might suspect from viewing the following slides. Planters who grow non-bird resistant milo may suffer severely from similar bird depredations, also. Sunflower production is being tested on a small scale in Arkansas. Some interesting bird depredation problems are sure to arise in the event commercial production is attempted.

Damage to oats and wheat grain may be locally significant due to depredations of resident birds. Seeded fields of these grains and of rice may be damaged locally also. Again, this is due mostly to activities of local-not migratory-birds.

In May, 1948, a study of the blackbird problem in Arkansas was initiated at Stuttgart. This study was conducted through June 1955, and the results of these studies were published in a bulletin (Neff and Meanley, 1957). These are the techniques which we rely upon today to alleviate bird damage in standing grain—the 22 caliber rifle, shot gun, rope firecracker, carbide gun, aerial hazing, and the decoy trap. They are the same ones suggested by Neff and Meanley. This, in spite of the fact that the Bureau has carried on blackbird research at Stuttgart almost continuously since 1948 (over 20 years), which should tell us something about the nature of the problem with which we are dealing. During the past 6 years, we have worked with one additional technique that will play a role--as yet undefined-in bird control programs in Arkansas. This is the use of bird alarm calls.

When we attempt to develop a bird control program for Arkansas grain producers, we soon discover that they are still concerned about a problem that has become relatively unimportant. It is not a small task to change their thinking from reliance on control measures which affect mostly migratory birds to techniques aimed at the birds that are really causing most of our damage—our own locally produced birds.

Table 3. Arkansas State Summary of Estimated Blackbird Damage

Damage Per Acre

	1958		1963		1966		1968	
	Acres Harvested	Damage per Acre	Acres Harvested	Damage per Acre	Acres Harvested	Damage per Acre	Acres Harvested	Damage per Acre
Rice	442,000	$8.98	426,000	$9.90	477,000	$5.92	573,000	$5.32
Grain Sorghum	76,714	5.47	14,000	7.74	52,000	23.08	50,000	2.76
Oats			57,000	2.16	91,000	1.21	68.000	.08
Wheat	378,601	1.43	168,000	2.09	367,000	1.78	568,000	.35
Rye			14,220	1.68	9,150	.84	7,500	.33
Corn (for grain)	623,562	.47	156,000	.89	65,000	1.51	52,000	.18

Table 4. Interceptions (1920-July 1962) of Birds Banded in Northern States and Provinces During the Period 15 April-30 November*

Interception Period	Brown-headed Cowbird		Common Grackle		Red-winged Blackbird	
	% taken in state or province where banded	% taken in southern states	%taken in state or province where banded	% taken in southern states	% taken in state or province where banded	% taken in southern states
1 July-14 Aug.	89	4	96	0	95	0
15 Aug.-31 Oct.	75	10	91	0	69	2
1 Nov-14 Dec.	21	50	33	45	13	70
15 Dec-31 Jan.	9	80	11	79	5	91
1-14 Feb.	16	66	9	80	19	79
15-29 Feb.	15	71	8	83	42	54
March	82	10	58	27	90	8
April	98	0	92	2	99	1
1 May-30 June	97	0	96	0	99	0

*Fankhauser, Don P., 1968. A comparison of migration between blackbirds and starlings. Wilson Bul. 80: 225-227. (A portion of Table 1, p. 226)

Table 5. Amount of Standing Rice That May Be Consumed During The Rice Depredation Period (August–October)*

	Red-winged Blackbird	Grackle	Cowbird
Daily food intake (rough rice) (confined birds)	12.4 grams	16 grams	14 grams
Percent of rice in diet during August, September, October	67%	55%	67%
Quantity of rice consumed per day per bird	8.308 grams or 0.2931 oz.	8.8 grams or 0.3104 oz.	9.38 grams or 0.3308 oz.

*Based on information from Neff, Johnson A. and Brooke Meanley, 1957. Blackbirds and the Arkansas Rice Crop, University of Arkansas, Agricultural Experiment Station, Bul. 584.

Table 6. Amount of Standing Rice That May Be Consumed During the Rice Depredation Period (August–October)

RED–WINGED BLACKBIRD

0.2931 oz. of rice consumed per day except in the milk stage when consumption is 2.931 oz. per day.

15 days milk stage–	2.930 x 15 = 43.966 oz.	
15 days ripening & maturing–	0.2931 x 15 = 4.3965 oz.	
10 days maturity to harvest–	0.2931 x 10 = 2.931 oz.	
40 day period		51.2935 oz. = 3.2058 lbs.

Rice @ $1.75 per bushel (21% moisture, standing in field) = $0.038888 per lb. Therefore, each bird may consume 3.2058 x $0.038888 = $0.125 worth of rice. One thousand redwings could be expected to destroy about 3,206 pounds of rice worth about $125.

Table 7. Amount of Standing Rice That May Be Consumed During the Rice Depredation Period (August–October)

GRACKLE

0.3104 oz. of rice consumed per day.

25 days dough stage to maturity
10 days maturity to harvest

35 day period–dough stage to harvest–0.3104 x 35 = 10.864 oz.
10.864 oz. = .679 lbs.

.679 lbs. x $0.038888 = $0.0246 (value of rice consumed per bird.)

One thousand grackles could be expected to destroy about 679 pounds or rice worth about $26.40.

COWBIRD

0.3308 oz. of rice consumed per day.

25 days dough stage to maturity
10 days maturity to harvest

35 day period dough stage to harvest–0.3308 x 35 = 11.578 oz.
11.578 oz. = .7236 lbs.

.7236 lbs. x $0.038888 = $0.02814 (value of rice consumed per bird).

One thousand cowbirds could be expected to destroy about 724 pounds of rice worth about $28.14.

Literature Cited

Fankhauser, Don P., 1968. A Comparison of Migration Between Blackbirds and Starlings. Wilson Bul., 80: 225-227

Hedlund, Arnold and J. M. Earles, 1969. Forest Statistics for the Delta and Ouachita Regions of Arkansas. USDA, Forest Service, So. Forest Exp. Sta., 12p.

Neff, Johnson A. and Brooke Meanley, 1957. Blackbirds and the Arkansas Rice Crop. Univ. of Ark., Agric. Exp. Sta., Bul. 584, 89p.

Sternitzke, Herbert S, 1960. Arkansas Forests. USDA, Forest Service, So Forest Exp. Sta., 58p.

DISCUSSION:

D. HARKE: How did you come up with your dollar and cents figure? Did you have to estimate bird numbers and then try to apply this to the damage?

ROBERT PIERCE: No, this was done by the county agents. They polled their rice producers and this figure was put against the number of acres of rice. What I can say is that it has been fairly consistent over the years, but it probably is not real scientific. I didn't have any way of going out myself.