Factors Influencing the Prices
Received for Texas Turkeys

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TEXAS AGRICULTURAL EXPERIMENT STATION
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A study was conducted during 1950-53 of the factors influencing the market quality and price received for Texas turkeys at the farm and in terminal markets.

In Texas, live turkeys usually are purchased as No. 1 or No. 2 grade. No. 1 turkeys are fairly well-fleshed birds with some finish and the pinfeathers fanned out. They are free of serious deformities such as cuts, tears or bruises. No. 2 turkeys are poorly fleshed, or badly bruised, or have bad deformities or numerous pinfeathers. Very low quality or inedible turkeys may be rejected at the farm. The overall condition of the flock, sex, variety and age appear to be more important in quoting prices than whether they are No. 1 or No. 2 grade.

Ready-to-cook grades of the U. S. Department of Agriculture were used to compare the market quality of the processed carcasses. A U. S. Grade A carcass is well fleshed and free of tears, large bruises, deformities and pinfeathers. Minor defects such as tears, bruises, deformities and a few scattered pinfeathers are permitted in the U. S. Grade B classification. The carcass also must be fairly well fleshed. The only requirement for Grade C carcasses is that they be edible and no major part of the carcass be removed. When a major part of the carcass, such as a wing or leg, is removed the turkey is classified as “No Grade.”

For every 100 Texas dressed turkeys marketed, 79 qualified as U. S. Grade A, 17 as U. S. Grade B and 4 as U. S. Grade C. The greatest single cause of low quality turkeys is poor fleshing or lack of finish. Many carcasses also are undergraded because of “blue back,” or blue pigment on the back breast or thighs. The producer can correct these defects by better feeding and management practices. Bruises cause the greatest loss of quality during marketing. Tears occur most frequently during the processing operation.

During this study, young No. 2 toms brought 8 cents less than young No. 1 toms, and No. 1 hens about 6 cents less than No. 1 hens.

Producers marketing large lots of turkeys received a higher price per pound and sold heavier turkeys than those marketing small groups.

Competition is keenest for the large flocks, most of which are purchased early in the season. As the season advances the size of the lots marketed decreases.

Most Texas turkeys move to market 14 to 21 days before Thanksgiving, with a second but smaller movement about 14 days before Christmas. Marketings during these two peak periods are gradually diminishing because more turkeys are being marketed earlier in the season.

Price fluctuations are greater at the beginning of the season when prices are being established and at the end of the season when the last of the year’s turkey crop is being marketed.

Some shipments of A, B and C quality turkeys packed in the same boxes are still shipped to terminal markets. Such shipments do not receive top market prices and help perpetuate the belief that Texas does not produce high quality turkeys.

This study shows that Texas turkeys, quality considered, now bring terminal market prices equal to those paid for turkeys produced in other states.

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Factors Influencing the Prices Received for Texas Turkeys

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Texas is one of the oldest turkey-producing states, and is well suited for turkey production. Texas producers have many advantages in turkey production over growers in other states. A dry climate helps to control blackhead, warm winters make little shelter necessary and large farms provide sufficient land for turkey ranges. These advantages, however, are not as important as they once were.

Improved methods of breeding, feeding, disease control and marketing which came into general use between 1920 and 1940 made it possible for other states to compete with older established areas like Texas in the successful production of turkeys.

During these 20 years, many Texas producers continued to raise turkeys as they always had done while other growers adopted improved production methods. The well-fed, broad breasted turkey began to compete with the old type "range" turkey whose feed consisted largely of insects, weed seed and gleanings from cultivated crops. When range and well-fed turkeys were received at the processing plant, the two types usually were mixed in the holding pens and slaughtered pen-run. The carcasses were not always carefully graded and frequently A, B and C quality dressed turkeys would be boxed together for shipment to wholesale and retail outlets.

Buyers on the large produce markets were receiving shipments of broad breasted turkeys boxed according to grades from other producing areas. To protect themselves from loss on the range turkeys which they expected to find, many buyers purchased Texas turkeys at a discount.

Most Texas range turkeys were lighter when marketed than full-fed turkeys. The demand for range turkeys was often good during these two decades despite their low quality because they were in the weight range desired by the housewife. After World War II, turkey producers went into large scale production of small turkeys such as the Beltsville Small White. Because these turkeys had about the same weights as range turkeys and were of higher quality, the demand for range turkeys declined.

PURPOSE OF THE STUDY

Some Texas turkey producers believe that market price differentials sometimes are unfavorable to Texas birds. A study was made during 1950-53 to determine the factors influencing the market quality and price received for live Texas turkeys at the farm and for dressed turkeys on terminal markets. Information on live purchases was collected from a sample of six representative processing plants located in the turkey-producing areas of the State. Information on purchases of dressed turkeys was obtained from wholesalers and covered 30 carloads which were sold in 10 states.

PRESENT METHODS OF MARKETING LIVE TEXAS TURKEYS

Most Texas turkeys move from the producer to the processing plant on the processor's truck. Some producers deliver their birds to the plant or sell to intermediate buyers such as the local feed store, general store, hatchery or a trucker-buyer who resells to the processor.

Generally, the large flocks are picked up at the farm. Often a flock will be picked up over a period of a week or 10 days. When the processor needs additional turkeys, he picks up enough birds to fill the day's processing quota.

Producers who make their own deliveries to the processing plant usually receive a cent a pound more for their turkeys than is paid them by an intermediate buyer. In some areas, producers may deliver only two or three turkeys at a time.

In a few cases, the local feed or general store may pick up turkeys at the farm when delivering feed, or purchase them at the store door. Each night the feed store delivers the day's purchases to the processing plant.

The trucker-buyer generally has a connection with a processing plant. He moves from farm

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Figure 1. Annual turkey production, Texas and United States, 1929-51. Source: USDA.

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to farm and when he has bought a load he delivers it to the plant. Under this arrangement, the trucker-buyer usually takes a prearranged mark-
up of about 2 percent, or he depends on the difference between the purchase price and his selling price for his profit.

In Texas, most live turkeys are purchased as No. 1's or No. 2's, hens or toms, young or old. Less than 2 percent of the turkeys included in this study were bought as No. 2's (Table 1) and less than 1 percent were purchased as old turkeys. No. 1 turkeys are fairly well-fleshed birds with some finish and the pinfeathers fanned out. They are free of serious deformities, such as cuts, tears or bruises. No. 2 turkeys are poorly fleshed, badly bruised, have bad deformities or numerous pinfeathers. A few very low grade or inedible birds may be rejected at the farm. Aside from sorting out all No. 2 turkeys, separating the sexes and the old and young toms, little live grading is done on an individual bird basis. Usually a selling price is based on the general condition of the flock.

In large flocks, especially Beltsville Small Whites, and in small flocks at the beginning or end of the season, purchases sometimes are made on an ungraded basis, and one price is quoted for the entire flock. Less than 9 percent of the

Table 1. Total Turkey marketings by number, weight and price, six plants, Texas, 1951-52

<table>
<thead>
<tr>
<th>Grade</th>
<th>Marketings</th>
<th>Average weight</th>
<th>Price per pound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Pounds</td>
<td>Cents</td>
</tr>
<tr>
<td>No. 1 toms</td>
<td>290,647</td>
<td>22.4</td>
<td>31.1</td>
</tr>
<tr>
<td>No. 2 toms</td>
<td>7,356</td>
<td>17.1</td>
<td>22.1</td>
</tr>
<tr>
<td>No. 2 hens</td>
<td>886</td>
<td>10.6</td>
<td>29.4</td>
</tr>
<tr>
<td>No. 1 hens</td>
<td>220,891</td>
<td>13.4</td>
<td>35.8</td>
</tr>
<tr>
<td>Old toms</td>
<td>754</td>
<td>20.5</td>
<td>25.7</td>
</tr>
<tr>
<td>Old hens</td>
<td>132</td>
<td>13.0</td>
<td>35.6</td>
</tr>
<tr>
<td>Turkeys¹</td>
<td>51,551</td>
<td>18.8</td>
<td>32.0</td>
</tr>
<tr>
<td>Total</td>
<td>572,577</td>
<td>18.5</td>
<td>32.4</td>
</tr>
</tbody>
</table>

¹ Less than 1 percent.
² Not classified as to sex, age or live grade.

Figure 3. Average number of No. 1 live turkeys purchased per transaction by sex by weeks, six plants, Texas 1951-52.

SEASONAL VARIATIONS IN MARKETING

At the beginning of the processing season, buyers purchase turkeys mainly from early-hatched large flocks. These flocks are purchased and processed as the birds become ready for market. Range turkeys do not finish early and generally are purchased only when other turkeys are not available. The average size of lots marketed declines from early in the season until Thanksgiving, then the lot size increases slightly as late-hatched commercial flocks come on the market, Figure 3.

After early orders are filled, processors can estimate the quality and size of the year's turkey crop and organize their plant operations accordingly. Turkey buying usually stops at this time except for the few birds brought in by small producers. This is reflected by the decline in the quality of dressed carcasses during early October, Figure 4.

The main part of the turkey crop begins to move to market about November 1. Turkeys slaughtered at this time can be packed, shipped,
for a better price still sell as No. 2 turkeys. The market closes the week before Christmas to allow time to ship turkeys to terminal markets. Occasionally some large flocks will be marketed after Christmas, but usually the grower has made an arrangement with the buyer to deliver them at this time.

Processing operations begin as early as August and dressed turkeys are moved to cold storage warehouses to be held for holiday sales. During the past few years, nearly 100 percent of Texas turkeys are fully drawn in the processing plant and the carcasses wrapped in plastic bags.

**INTRASEASONAL PRICE FLUCTUATIONS**

Turkey prices fluctuate most widely at the beginning of the marketing season when prices are being established, Figure 6. The period of heaviest marketing and greatest price stability occurs during the 4 weeks before Thanksgiving. Few turkeys are purchased the week after Thanksgiving. The market opens again early in December for late-hatched commercial flocks, and the remainder of the range flocks are marketed at this time. Wide price fluctuations usually prevail from Thanksgiving to the end of the season.

Certain long-range trends as well as seasonal factors cause variations in the intraseasonal price...
behavior. Increasing numbers of turkeys are processed early in the season and held in storage until Thanksgiving and more turkeys are consumed at times other than Thanksgiving and Christmas. In some years, government supports and purchases have helped to equalize price fluctuations. Figure 6 shows the effect of government purchases during 1952.

Prices fluctuate slightly more on toms than on hens, probably because quality is more variable in toms than in hens.

RELATION OF PRICE TO AVERAGE WEIGHT AND LOT SIZE

According to the 1950 U. S. Census, the average flock size was 66 turkeys in Texas, 899 in California and 1,167 in Iowa, Table 2.

The large number of small turkey flocks in Texas also is reflected in the many small lots of turkeys marketed. Fifty-four percent of all 1952 transactions in six Texas processing plants were of less than 50 turkeys. In the same year, however, almost 74 percent of all the turkeys marketed were sold in lots of 200 or more, Table 3.

There is a definite relationship among the number of turkeys marketed, average weight, the price paid per pound and the total value per head. Table 4. The average weight of all toms marketed in groups of 10 or less in 1952 was 19.7 pounds, as compared with an average weight of 23.3 pounds for those marketed in groups of 200 or over. Most turkeys raised in Texas are of the Broad Breasted Bronze variety. Bronze turkey toms generally are not finished at a weight of 18 pounds; therefore, this weight is assumed to be an indication of low quality. This assumption also is partially reflected in the fact that producers marketing in lots of less than 10 turkeys received an average price of only 29.1 cents per pound, as compared with 31.4 cents per pound for lots of over 200 toms. The same trends appear more pronounced when the average value is compared—$5.74 per head when less than 10 toms were marketed and $7.32 per head when more than 200 head were marketed.

Hen turkeys follow the same pattern, although the trends are not as marked because their fleshing is better than toms and they finish at a younger age and a lighter weight. Hens received at the processing plant do not have as wide a weight range or as great a variation in quality as toms.

The same relationships were found in 1951 among size of lot marketed, average weight, average price per pound and average price per head, but the trends were more marked than in 1952.

Even though turkeys marketed in small lots weighed less and did not bring as much per pound as turkeys marketed in large lots, there appears
Table 4. Relation among size of transaction and weight, price and total value of turkeys, six plants, Texas, 1951-52.

<table>
<thead>
<tr>
<th>Size of lot</th>
<th>1951 Turkeys</th>
<th>1952 Turkeys</th>
<th>1951 Average weight</th>
<th>1952 Average weight</th>
<th>1951 Average price</th>
<th>1952 Average price</th>
<th>1951 Value per head</th>
<th>1952 Value per head</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>No.</td>
<td>Pounds</td>
<td>Pounds</td>
<td>Cents</td>
<td>Cents</td>
<td>Dollars</td>
<td>Dollars</td>
<td></td>
</tr>
<tr>
<td>1-1</td>
<td>6.146</td>
<td>4.966</td>
<td>17.6</td>
<td>19.7</td>
<td>32.6</td>
<td>29.1</td>
<td>$5.73</td>
<td>$5.74</td>
</tr>
<tr>
<td>1-2</td>
<td>14.440</td>
<td>13.007</td>
<td>18.2</td>
<td>19.7</td>
<td>32.7</td>
<td>29.8</td>
<td>5.85</td>
<td>5.86</td>
</tr>
<tr>
<td>1-3</td>
<td>16.866</td>
<td>19.536</td>
<td>18.3</td>
<td>20.0</td>
<td>33.7</td>
<td>30.1</td>
<td>6.18</td>
<td>6.03</td>
</tr>
<tr>
<td>1-4</td>
<td>27.562</td>
<td>30.538</td>
<td>18.8</td>
<td>20.9</td>
<td>34.2</td>
<td>30.6</td>
<td>6.44</td>
<td>6.39</td>
</tr>
<tr>
<td>1-5-19</td>
<td>21.451</td>
<td>37.939</td>
<td>20.8</td>
<td>21.8</td>
<td>34.5</td>
<td>30.9</td>
<td>7.17</td>
<td>6.74</td>
</tr>
<tr>
<td>20 and over</td>
<td>46.626</td>
<td>184.353</td>
<td>23.2</td>
<td>23.3</td>
<td>35.2</td>
<td>31.4</td>
<td>8.19</td>
<td>7.32</td>
</tr>
</tbody>
</table>

Table 5. Live turkeys marketed by weight classes, sex and price, six plants, Texas, 1951-52

<table>
<thead>
<tr>
<th>Weight classes</th>
<th>1951</th>
<th>1952</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>Av. price</td>
<td>No.</td>
</tr>
<tr>
<td>1-1</td>
<td>1951</td>
<td>29.2</td>
</tr>
<tr>
<td>1-2</td>
<td>1951</td>
<td>29.2</td>
</tr>
<tr>
<td>1-3</td>
<td>1951</td>
<td>29.2</td>
</tr>
<tr>
<td>1-4</td>
<td>1951</td>
<td>29.2</td>
</tr>
<tr>
<td>1-5-19</td>
<td>1951</td>
<td>29.2</td>
</tr>
<tr>
<td>20 and over</td>
<td>1951</td>
<td>29.2</td>
</tr>
</tbody>
</table>

Table 6. Turkeys - Green - weight Average price Value per head

<table>
<thead>
<tr>
<th>Size of lot</th>
<th>1951</th>
<th>1952</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>No.</td>
<td>Pounds</td>
</tr>
<tr>
<td>1-1</td>
<td>6.105</td>
<td>4.937</td>
</tr>
<tr>
<td>1-2</td>
<td>13.877</td>
<td>12.459</td>
</tr>
<tr>
<td>1-3</td>
<td>19.678</td>
<td>20.906</td>
</tr>
<tr>
<td>1-4</td>
<td>23.192</td>
<td>31.120</td>
</tr>
<tr>
<td>1-5-19</td>
<td>22.121</td>
<td>35.721</td>
</tr>
<tr>
<td>20 and over</td>
<td>33.680</td>
<td>113.310</td>
</tr>
<tr>
<td>All turkeys</td>
<td>64.308</td>
<td>420.828</td>
</tr>
</tbody>
</table>

includes flocks purchased ungraded. No. 1 and No. 2, old and young, toms and hens.

There is little relation between average weight and price per pound received, Table 5. This may be because of year-to-year changes in demand for certain weights. During 1952, government purchases of turkeys for the school lunch program created a demand for heavy toms and caused the price paid for these birds to increase.

MARKET QUALITY OF DRESSED TEXAS TURKEYS

Dressed grades of the U. S. Department of Agriculture were used to compare the market quality of the processed carcasses. A U. S. Grade A carcass is one which is well fleshed and free of tears, large bruises, deformities and pinfeathers. Minor defects such as tears, bruises, deformities and a few scattered pinfeathers are permitted in the U. S. Grade B classification. The B carcass also must be fairly well fleshed. The only requirement for the Grade C carcass is that it be edible and no major part of the carcass be removed. When a leg or wing is removed, the carcass is classified as "No Grade."

Information collected from a sample of six plants on over three-quarters of a million dressed turkey carcasses during 1950-52 indicated that about 79 percent of Texas turkeys qualify as U. S. Grade A, 17 percent as U. S. Grade B and 4 as U. S. Grade C, Table 7. Information was collected from plants having Agricultural Marketing Service (formerly Production Marketing Administration) grading and those not using this service. These figures compare favorably with yields from other turkey-producing areas. Approximately 7 percent more hens than toms qualified as U. S. Grade A. Poor fleshing, lack of finish, bruises and blue back, breasts or thighs were the main causes of Grade B carcasses, Table 7.

Figure 7. Producers marketing small lots of turkeys do not generally receive as high a price per pound as those marketing large lots.
Thirty-six percent of the toms and 22 percent of the hen carcasses marked Grade B were put in this classification because of poor fleshing or lack of finish when marketed. One cause of poorly-fleshed, unfinished turkeys is the practice used by many small producers of rearing turkeys on a restricted feeding plan. Such turkeys are almost entirely dependent on the feed picked up on the range. This feed does not supply a balanced ration. These range turkeys arrive at processing plants poorly fleshed, blue in color over the thighs and back and with an undesirable brownish-yellow skin. Hens from range flocks barely qualify as Grade A carcasses, and the toms are generally of B or C quality.

Hens are more tender and bruise easier than toms. About 8 percent more hens than toms are down-graded because of bruises.

Blue back is caused by broken pinfeathers or exposure to sunlight. Some years only a few "blue back" turkeys are found. The blue pigment occurs mainly on dark-feathered varieties and is more prevalent during hot, dry weather. The blue pigment from the feather follicles causes blue patches or blotches under the skin and detracts from the appearance of the carcass. It cannot be removed by scalding.

Skin tears may start before or during the processing operation. Partially-healed tears often are enlarged by picking machinery. Veterinary inspectors frequently cut out bad bruises or other damaged parts of a carcass, leaving large skin tears, and Grade C or "no grade" carcasses.

"Discoloration" is the term used to describe carcasses with an undesirable color. It may be caused by poor finish, brownish-yellow skin color, poor bleeding or by a combination of these factors. Improper feeding and poor health probably bring about such conditions.

The importance of pinfeathers has diminished because most turkeys are now subscalded at 138-140° F, instead of being semiscalded at 130-130° F. The feathers are easier to remove at the higher temperatures. Most undesirable colors are in the outer layer of the skin, which can be removed when higher temperatures are used in scalding. The subscalding method can improve the appearance of the carcass but sometimes it has disadvantages such as only the partial removal of the outer layer of skin.

Insect bites are an important quality factor in some individual flocks. During this study, one large flock was rejected after a few of the turkeys had been processed. Lice had made numerous blemishes on the skin. These small red spots detracted from the appearance of the carcass and the birds had to be sold as Grade B or C carcasses. Blue bugs, other ticks and chiggers also cause red welts on turkey carcasses.

Poor bleeding is caused by processing low-quality turkeys which may not bleed well, or improper severing of the jugular veins during the slaughtering operation or by failure to allow sufficient time for proper bleeding.

Less than 1 percent of all turkeys graded were rejected as being unfit for human consumption because of bad odors. Sour crops were the main cause of rejection from this source. Birds with sour and pendulous crops are usually rejected at the farm.
Figure 9. Poor fleshing (left), bruising (center) and skin tears (right) are major causes of quality loss in Texas turkeys. Skin tears may start before or during processing.

PRICES RECEIVED BY TEXAS PRODUCERS

Texas, with 7 percent of the nation’s 1952 turkey crop, was fourth in turkey production in the United States, but in 40 other states farmers received a higher average price per pound. Figure 10 compares the prices received for Texas turkeys with the prices received in the other four major turkey producing states. Most of the states in which farmers received higher-than-average Texas prices were areas where fewer turkeys were produced than were consumed. While Texas producers have received less per pound for their turkeys than those in other large turkey producing states, the price differentials have been diminishing. During the 1950 and 1952 turkey marketing seasons, for example, California turkey producers in some months received less for their turkeys than did Texas producers. This decline in price differential is probably caused in part by the increase in quality of Texas turkeys.

COMMENTS BY WHOLESALERS ABOUT TEXAS TURKEYS

Information collected on 30 carloads of Texas dressed turkeys sold in 10 states during 1951 and 1952 indicated that Texas turkeys do not always bring as high a price as those from other areas. Records of shipments of turkeys that received less than the regular market price, however, showed that the carcasses were of inferior quality.

Specific complaints listed by some of the buyers were:

1. Breeder hens mixed in the same pack with young hens.
2. Small toms packed in the same box with hens.
3. Variations in weights of individual birds in the same box above accepted tolerances.

Figure 10. Live turkey prices for selected states, marketing season, 1947-52. Source: USDA.

Figure 11. Buyers demand carefully graded and sorted, attractively-packaged turkeys.
4. Grade A and B carcasses mixed in the same pack.

5. Toms lacked finish and often were rangy and thin.

6. Birds had an undesirable yellow skin color.

Most shipments of Texas turkeys that were checked received the market price as quoted by the USDA market news service at the terminal market to which the shipment was made. Some shipments of government-graded Texas turkeys received top market prices.

All information collected in this study clearly indicates that, quality considered, Texas turkeys are sold in produce terminals for as high a price as are turkeys produced in other areas.

ACKNOWLEDGMENTS

The authors wish to acknowledge the information and assistance provided by the various Texas turkey processing plants, and the Poultry Division, Agricultural Marketing Service (formerly Production and Marketing Administration), U. S. Department of Agriculture.

Appreciation also is due F. Z. Beanblossom and K. F. Schlamb of the Texas Agriculture Extension Service for their assistance in preparation of this bulletin.

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