



# Cattle Producer's Handbook

Management Section

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## Livestock Scales Selection for Cattle Ranches

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Livestock scales are an important component of many ranching operations. They are essential for marketing cattle and monitoring livestock performance in the areas of calf growth, cow weight, and cow condition.

Previously, only large cattle operations could justify the purchase of livestock scales, and often these could not be certified to weigh animals for sale. The "Economics of Scales Purchase" section (see page 2) discusses the impact of a shrink and how to reduce the shrink loss in order to pay for ranch scales.

### Beam Platform Scales

Beam platform scales (like the old Fairbanks scales) were the standard for many years. Old and new beam platform scales require excavation, a concrete pit, and costly repairs if they become inaccurate. The cost of the excavation and the concrete for the scale pit may total several thousand dollars, depending on the contractor and the cost of the materials.

Before purchasing a set of the old Fairbanks scales, check with your state's Weights and Measures office. Some states allow scales that are licensed at the time of sale to be grandfathered in or relicensed even though they would not qualify for licensing by today's standards.

If the scales were purchased out of state, this may void the old license and make them ineligible to be certified.

Any Fairbanks scales that are older than the "J" series may not meet the certification requirements. For those livestock producers who prefer beam scales, a few companies are still marketing new scales.

### Electronic Scales Selection Information

Technology and marketing strategies have stimulated rancher interest in electronic scales. These scales are accurate, inexpensive to purchase, and easy to set up.

A basic electronic scale has four load cells, an indicator, and a platform that rests on the four load cells. The indicator requires 110 volt current to the scale site. Some indicators are solar powered, for scales located too far from an electrical source. The footing needed for the scale will use 5 to 6 yards of concrete.

The components of electronic scales are printer, weight indicator, platform, and the load cells. These components may be manufactured by one company or by several different companies. Before purchase, make certain all components are compatible and that each component will be certifiable in the package you are purchasing. Ensure that the following information about the platform is pertinent: specific model, platform size, and capacity listed. Also determine that the platform accuracy is appropriate, and the platform capacity matches the rest of the scale components.

In selecting an optional printer, ensure the specific model number is approved for the intended use. Usually a printer is required as a part of the scales if used to weigh animals to be sold. A weight indicator must have the specific model as listed on the certificate. If the class is Type III, then III or IIIIL may be used, but if Type IIIIL is used, then only IIIIL may be used in that application. If a load cell is rated as single, then it may be used as a single or as a multiple cell. If the load cell is rated as a multiple, then it may be used only in a multiple cell application.

Also important to note is that the load cells match the indicator; class III or IIIIL cells should be used with a class III indicator. With a class IIIIL indicator, only class IIIIL load cells may be used.

*NOTE:* Repair or remanufacture of load cells must be done by the original company or authorized agent. If the load cell is repaired by anyone else, it may not be recertified by your state. Investigate with your state's Weight and Measures standards pertaining to repair of load cells before undertaking repairs.

### **Electronic Scales Compatibility with Computers**

Flexibility in the use of scales should be considered. The scales should be able to weigh calves to be sold or weigh calves to determine which cows did not perform and should be culled. The compatibility of electronic scales with personal computers may be important to prospective purchases.

The ability of electronic scales to interface with other computers to automatically record the weights of the animals weighed should be considered. If the scales are able to automatically record the weight of the animals, then the use of electronic eartags is an option. An electronic eartag reader mounted in an area so that animals are identified as to the weights recorded is desirable. The biggest limitations on cattle production records is the loss of eartags and transposition of numbers when recording information. A scale system that would reduce these problems is very desirable.

### **Federal Inspection Requirement for Certification**

The National Institute for Standards and Technology (NIST) is a federal agency that reviews, evaluates, and oversees the weight and measuring devices industry. Private industry, the federal government (NIST), and state Weights and Measures officials initiated a program to evaluate all weighing equipment for accuracy. Before purchasing livestock scales for commerce, one should be sure they are listed and certified by the National Type Evaluation Program (NTEP). The NTEP publication provides a list of certified scales that may be available to ranchers in all 50 states.

NTEP provides a set of procedures for the uniform testing/evaluation of weighing equipment, and has several recognized laboratories where testing may be performed. Once testing is completed, NTEP issues a Certificate of Conformance (CoC) as evidence of compliance with its provisions.

NTEP is a voluntary program, and manufacturers are not required to submit their products for evaluation. Individual states are not required to accept NTEP certificates as the basis for allowing scale products to be used for commerce. However, it is one of the best indicators that the scales you purchase meet some standards for accuracy.

Certificates may be issued for complete scales or individual scale elements such as the load cells. The Certificates of Compliance always provide the following information: certificate number, manufacturer's name, product description, model number, standard features, application, and test conditions. Table 1 lists the western states Weights and Measures agencies and directors.

### **Single Animal Scales**

A proliferation of single animal electronic and beam scales are being sold and purchased by livestock producers. One of the most popular of these are load cells that fit under cattle chutes. Many people believe this to be good multiple use of their equipment. This is a convenient way to collect production data on livestock, but it has drawbacks for marketing. Extreme wear may shorten the life expectancy of the load cells. Many single animal scales are not designed to be certified. Taking time to investigate the capacity of the scales and if they can be certified before purchase will benefit your operation financially.

### **Scale Placement**

Before deciding where to place the scale, evaluate its potential uses, current corrals, and livestock facilities. It is unlikely that the scales will be moved once they are placed. Any modifications to the corrals should be initiated and completed before placing the scales. It is possible to move some electronic scales, but once they are moved, they are no longer certified for sale of livestock and must be recertified by your state weigh representative.

### **Economics of Scales Purchase**

Each time livestock are moved, they lose weight when excreting urine and feces due to excitement. Just loading animals will result in a shrink, mostly completed within the first 30 miles. Often this early shrink will be 3 to 4 percent of their bodyweight. An animal that is overly excited may shrink as much as 6 percent of bodyweight. If animals are hauled great distances or left overnight without water, shrink may be as high as 12 percent.

Animals purchased by private treaty are usually allowed 3 to 4 percent pencil shrink, in addition to the actual 3 to 4 percent loss due to travel to the scales. Additional stresses such as a hot day or running to the corral before weighing will result in greater shrink.

Animals that are moved quietly from the pasture or corral and weighed at the ranch experience little or no additional shrink. If your ranch operation had a set of certifiable livestock scales, within a few years the savings from not having animal shrinkage could repay for the purchase of scales.

Most certified electronic scales available for ranch uses are priced from \$5,000 to \$10,000 (Table 2). They

**Table 1. Western states weights and measures agencies and directors.**

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**Table 2. Number of calves necessary to pay for a \$5,000 certified electronic scale.**

| <b>Market price</b> | <b>3% shrink on 500-lb calf</b> | <b>\$ loss per calf</b> | <b># of calves to pay for scale</b> |
|---------------------|---------------------------------|-------------------------|-------------------------------------|
| \$0.50              | 15                              | \$7.50                  | 666 head                            |
| \$0.60              | 15                              | \$9.00                  | 555 head                            |
| \$0.70              | 15                              | \$10.50                 | 576 head                            |
| \$0.80              | 15                              | \$12.00                 | 416 head                            |
| \$0.90              | 15                              | \$13.50                 | 370 head                            |

are relatively new on the market. Too few used certified electronic scales are available for sale to establish a market value as yet.

## Summary

Certified scales on the ranch are an important asset that may pay for themselves in a short time. Either beam scales or electronic scales are equally satisfactory. Each has advantages and disadvantages. Electronic scales may be more versatile, but beam scales are usually easier to maintain and repair. Electronic scale malfunctions usually result in a service call.

If electronic scales are selected, be sure that they are NTEP approved and that all components are compatible. Evaluation and planning before the purchase and placement are essential for efficient use of the scales. Many times livestock scales will pay for themselves in improved records, better management, and reduced marketing cost.



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Fourth edition; December 2016 Reprint