



Estimating the Value of Wet Citrus Pulp for Florida Cattlemen¹

John D. Arthington and Findlay M. Pate²

Introduction

Citrus pulp can be provided in at least two common forms, wet and dry. Dry pulp has been the most common form available. It is derived from drying pulp and rind waste from the citrus crushing process. Generally it is found in an easy-to-handle pelleted form. Another form that has become more available to south Florida cattlemen is wet pulp. Dry pulp and wet pulp should be considered identical in terms of nutritional content, less the water. Depending on the price of energy, the costs of drying pulp may exceed its value as a commodity feed. Therefore, many citrus plants have offered wet pulp to cattlemen for only the price of trucking. This may sound free, but it is not. Wet pulp contains approximately 80% water, and trucking water to livestock is not a profitable endeavor. Therefore, the value of wet pulp must be weighed against the cost of dry pulp. We have had numerous inquiries at the Range Cattle REC regarding the value of wet citrus pulp. The information below should be helpful in making these purchasing decisions.

Estimating the Value of Wet Pulp

Some assumptions must be made to make an appropriate comparison. Individual producers can increase the accuracy of the comparison by obtaining actual information specific for their situation.

For the example, we will use the following information that was obtained from south Florida during the 2000-2001 winter season.

1. Truck delivers 15 tons of wet pulp and charges \$100 delivery
2. Wet pulp contains 20% dry matter (DM)
3. Dry pulp is \$75 / ton, delivered
4. Dry pulp is 91% DM
5. Both dry and wet pulp contain 78% TDN and 7.0% protein on a DM basis

1. This document is AN108, one of a series of the Animal Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Published August 2001, reviewed and revised July 2008. Please visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
 2. John D. Arthington, Assistant Professor of Beef Cattle Management; and Findlay M. Pate, Professor of Animal Nutrition and Center Director; Range Cattle Experiment Station, Ona, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, 32611.

Although the citrus processing plants may offer wet pulp for free, the cost of shipping and the amount delivered are important considerations to the actual cost to the producer. Below, Figure 1 describes the cost of wet pulp using two delivery weights and two delivery charges.

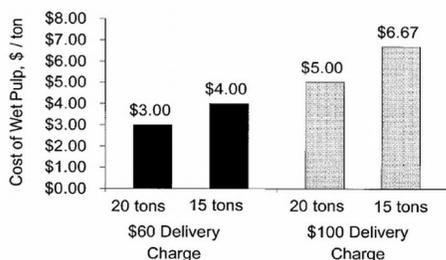


Figure 1. The cost of wet citrus pulp considering differences in load size and delivery charge. Assumes 9 and 80 % moisture for dry and wet citrus pulp, respectively.

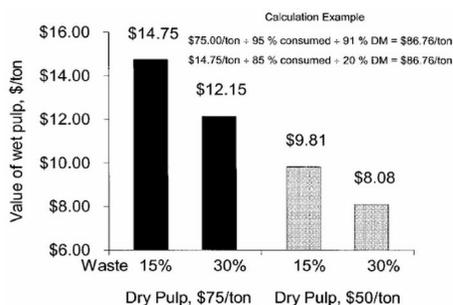


Figure 2. The value of wet citrus pulp considering differences in wastage and dry pulp price (assumes 5% wastage during dry pulp feeding).

Considerations for Feeding Wet Citrus Pulp

Other considerations are important when deciding whether or not to use wet citrus pulp.

1. Dry pulp can be stored in bags or a covered shed and fed to cattle at a desired rate. Overeating is therefore rarely a problem. Because of handling constraints, wet pulp is usually offered free choice. If citrus pulp makes up too much of the total diet, cattle may experience ruminal problems that can adversely affect performance and may lead to death. A rule of thumb is that citrus pulp should not exceed more than 40% of the total diet dry matter. When feeding wet pulp, be sure that there is at least some forage available to the cattle.

2. Dry pulp is more concentrated in nutrients on an "as-fed" basis and therefore more likely to deliver a uniform supply of TDN and protein.

For example: To deliver 5 lb of supplemental TDN, a cow would have to consume 7 lb of dry pulp versus 32 lb of wet pulp.

Citrus pulp feeding should be viewed as a complement to a good winter forage program. During harsh winters, producers may find available forage to be limited. In these situations, it is important to consider the need for supplemental protein. As well, lactating cows may require supplemental phosphorus. An analysis of forage quality and availability will provide useful information when supplementing cattle consuming citrus pulp.

3. Pasture sod damage will occur in the feeding areas used for wet pulp. In these areas, pasture weeds and undesirable grasses may establish themselves the following growing season. To minimize this problem, place wet pulp on less productive areas of pasture and continue to dump new loads in the same location. Also, these feeding areas will result in high-intensity sites for nutrient accumulation. Consider the Florida Cattlemen's Best Management Practices to reduce the risk of water runoff contamination.

Table 1. Calculating nutrient costs (TDN and protein) of wet and dry pulp.

Product	\$/ton, as fed	\$/ton, DM	\$/ton,(after waste)	\$/ton TDN
Dry Pulp	\$75.00	\$82.42	(5% \$86.76)	\$111.23
Wet Pulp	\$ 6.67	\$33.35	(30%) \$47.64	\$61.08