



UNIVERSITY OF
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Florida Cooperative Extension Service

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Energy for Florida Beef¹

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Energy Facts

Florida Beef

*More than 5 million acres of pasture.
Statewide, uses 10.7 trillion Btu of energy,
8.7% of all energy used in Florida agriculture.
Per cow, uses 10.3 million Btu of energy.
\$37 return per million Btu of energy used.*

Beef production in Florida is primarily cow-calf operations. Its magnitude is indicated by the number of brood cows (1,083,000 in 1990) and the acreage in pasture (over 5 million acres in 1990). Beef ranks fourth after oranges, foliage and grapefruit among all Florida agricultural commodities in direct energy requirements. It ranks third only to oranges and foliage in total primary energy requirements. Beef production requires a significant portion of the energy required for all Florida production agriculture, 6.7% of the direct energy and 8.7% of the total primary energy. Statewide, beef production accounts for 2.60 trillion Btu of direct energy and 10.7 trillion Btu of total primary energy.

The annual amount of direct energy for beef production from FAECM is 2.40 million Btu/cow and the total primary energy is 10.3 million Btu/cow. The major energy inputs for beef production are "other costs" (27%), gasoline (22%), nitrogen for pasture fertilization (21%), and labor (7%). "Other costs" for beef consists of such inputs as land ownership, capital costs of machinery and facilities, and repairs (Figure 1, Table 2).

Comparison of the value of beef production with its energy requirements shows that the value per million direct Btu of \$151 is slightly above the average for all Florida agriculture production of \$136. The value per million total primary Btu of \$37 is somewhat below the state's average of \$44.

FLORIDA AGRICULTURE PRODUCTION ENERGY

The data presented in this fact sheet were developed using the Florida Agricultural Energy Consumption Model (FAECM), a computer model. FAECM uses acres of production or livestock numbers and the energy used to make the production inputs required per acre or per head to quantify the *primary* energy used in Florida for agricultural production. This *primary* energy consumption includes fuels, lubricants and electricity, called *direct*

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energy inputs, as well as the energy used in providing all production inputs (*indirect* energy inputs).

It takes energy to drill an oil well, pump the crude oil out, refine it and transport the diesel fuel to the grower. It takes the energy in the natural gas feedstock plus the energy used to construct the production plant, power the production plant and drive the truck to get the nitrogen fertilizer to the grower. FAECM quantifies the eight direct energy sources (diesel fuel, LP gas, etc.), the indirect energy used to make those eight energy sources available and the indirect energy used to provide thirteen major agricultural inputs (nitrogen fertilizer, pesticides, etc) to determine the energy required to produce agricultural commodities in Florida.

In total, FAECM is a model that predicts all the energy required to provide all inputs necessary, up to the farm gate, for all of Florida's agricultural

production, FAECM does not address energy requirements for any transportation, packing, processing, distribution or other functions provided for agricultural commodities after they leave the farm gate.

FAECM shows that direct energy inputs for Florida agricultural production have remained relatively constant since 1974 (Figure 1). Variations are due mainly to changes in commodity production levels and a changing mix of commodities produced. The reduction in total primary energy is due primarily to increases in energy efficiency of industrial production systems for agricultural production inputs.

Florida consumed 66% more energy in 1990 than in 1974, due in large measure to its increased human population. Florida agricultural production energy, expressed as a percentage of the rapidly increasing Florida total energy consumption, has decreased sharply from 7.8% in 1974 to 3.9% in 1990.

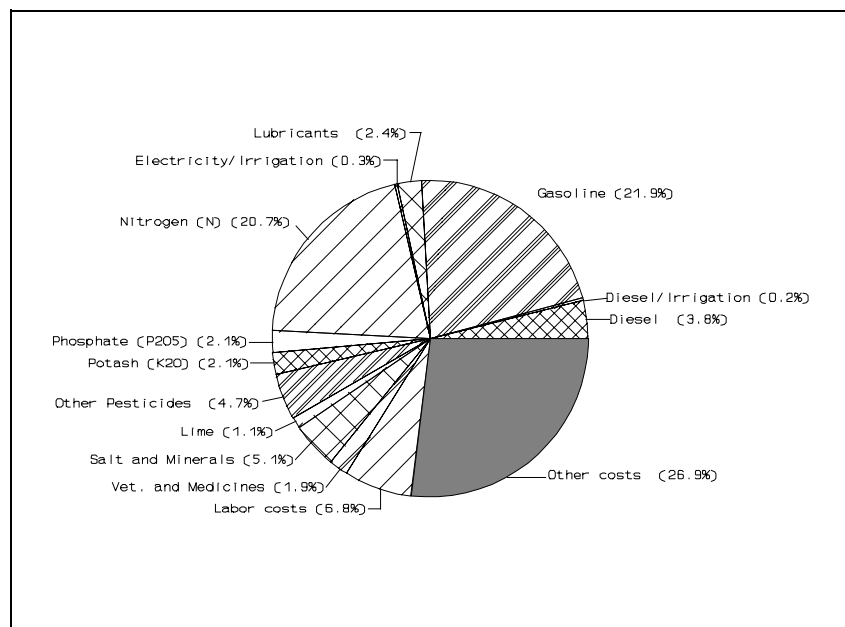


Figure 1. Primary energy inputs for Florida beef production.

Energy Inputs	%
Other costs	26.9
Gasoline	21.9
Nitrogen	20.7
Labor	6.8
Salt & Minerals	5.1
Other Pesticides	4.7
Diesel for non-irrigation	3.8
Lubricants	2.4
Phosphorous	2.1
Potash	2.1
Veterinary & Medicines	1.9
Lime	1.1
Electricity for Irrigation	0.3
Diesel for irrigation	0.2

Table 2. Primary energy inputs for Florida foliage production.

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