

MATHEMATICAL REPRESENTATION OF THE DROUGHT DECISION MODEL

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Profit Model:

$$(1) \quad \pi_t = R_t - C_t$$

Revenues:

$$(2) \quad R_t(h, \phi, w_t, p_t) = q_t(h, \phi, w_t)p_t$$

$$(3) \quad q_t = \phi h * w_t$$

Costs:

$$(4) \quad C_t = \gamma h$$

Parameters: ϕ : Average percentage of calves sold, h : herd size (number of cows, does not include calves), w_t : calf weight at weaning in year t (pounds), p_t : price of calves at weaning in year t (\$/pound)