AEC 932: In Class Discussion Problem #1 for 09/10/04

Background:

A Michigan farm business purchases “feeder” cattle at auctions in North Carolina in groups of one to five head. The feeder cattle are purchased at auction for the farm by an “order buyer”; the buyer purchases cattle for other customers as well. This is something of a broker function. At the time of purchase, the feeder cattle are between six and 15 months of age (450 lbs to 800 lbs). The cattle are placed on “backgrounding” farms in North Carolina for about 45 days prior to shipment by truck to Michigan. Several lots of feeder cattle are pooled and managed in a consistent way prior to shipping to Michigan by truck in 40,000 pound groups.

The Michigan farm business is called a feedyard or feedlot. Feeder cattle are placed on a high grain diet until they reach 1,150 to 1,300 lbs; the end weight will depend upon market conditions and the characteristics of the feeder cattle purchased. One of the feedlot’s challenges is to design a contract with the backgrounders (approximately 10 in number) that has desirable properties. The feedlot’s objective is to get healthy cattle that have gained at a target rate/day while in the backgrounding operation; ultimately, the profitability (utility) from the feedlot’s perspective is measured in terms of the profitability for both the feedlot phase and the backgrounding phase. That is, profitability over the period from purchase to sale for slaughter.

The backgrounding operation must handle health issues, provide standard disease preventative inoculations, and provide feed (usually, pasture with limited grains).

Question:

1) What are the principal-agent issues involved?
2) Are there issues of screening? Signaling?
3) Do you have suggestions for contract design? Explain.