The Economics of Robotic Milkers

Automatic milking systems (AMS) are complex and therefore costly. Two primary designs are currently available. The first is referred to as a single box unit. This design uses one robot for each milking stall. The other option is a multiple box unit where a single robot serves up to four milking stalls. There are advantages to both designs. Single box units are more expensive, but they provide a greater milking capacity. Since each milking stall has a robot, the robot is always available for attaching the milking unit when the cow enters. In a multiple box unit, a cow may wait in a milking stall while the robot is servicing another stall. This reduces the milking capacity per stall. Because the robot is shared across multiple stalls though, the initial cost per stall is less.

The initial cost of an AMS is greater than that of a traditional milking system. How much greater is very dependent upon the cost of the system to which it is compared. The first AMS stall installed on a farm will cost approximately $250,000. Additional single box units will cost about 10% less. The first stall of a multiple box unit may cost a little more than one single box unit with additional stalls costing $25,000 to $40,000. The initial equipment cost of a double-12 parlour with full automation is about the same as that for a single AMS unit. However, the milking capacity of this parlour is greater—three or more AMS milking stalls would be needed to handle an equivalent-sized herd. Compared to a lower cost parlour such as a swing parlor design, the initial investment in AMS is much greater.

The graph above shows the results of a study comparing net returns from single-box robotic milkers with those from conventional systems when all fixed and variable costs were considered. On a farm of 50-60 cows, an AMS can be very competitive and may even offer an economic advantage over a conventional system. On larger farms, the difference in net returns between the two systems is minimal when herd size is well matched to the 60-cow capacity of the single box AMS.