Technology Adoption on Connecticut Dairy Farms

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In the last half of this century, Connecticut dairy farms have maintained a level of productivity of their cows greater than that of the average US dairy farm. Part of the reason behind this high productivity per cow has been farmers' willingness to adopt the latest productivity enhancing technologies.

These new technologies have included: (i) better milking technologies and techniques, (ii) improved animal feeding techniques and machinery, (iii) new farm management techniques. Two other types of technologies: rBST and rotational grazing are described in separate fact sheets.

The information presented here comes from a survey sent to all 245 Connecticut dairy farmers. Of these 124 returned useable information on their dairy farms, representing a 51% response rate.[1] Despite recent growth in cow numbers (17% increase in cows per farm since 1990), dairy farms remain a relatively small scale business, with more than 60% having under 100 milk cows. Connecticut dairy farmers are well educated, productive farmers. The rolling herd average of 19,800 lbs per cow is above the national averages.

Technology Usage:

The following tables present the technology adoption patterns of Connecticut Dairy farms. In general most productivity enhancing technologies have been adopted by 2/3 to 3/4 of the farmers.

Connecticut farmers have high rates of use of the latest milking technologies. The main exception is three-times a day milking. The low adoption rates of this practice may be because of the small size of the state's dairy farms and most importantly, the difficulty in finding labor willing to work on a dairy farm.

Table 1

Milking Technologies	Percent of Farms
Predip all teats before milking	61.3
Postdip all teats after milking	96.7
Have a parlor milking system	61.5
Milk cows three times a day	9.6

Nearly every farmer uses AI technology and over two-thirds use the other major feeding and animal care technologies.

Table 2

Animal Care, Feeding, and Housing Technologies	Percent of Farms
Regularly scheduled veterinary services	80.7
Balance feed rations at least 4 times yr	70.9
Total mixed ration machinery	62.7
Artificial insemination on 75% of herd	93.4
Freestall housing for the milking herd	73.1

Table 3 shows a high level of technical sophistication among Connecticut dairy farmers in adopting computers and management programs. As might be expected on technically sophisticated dairy operations very few farms are on seasonal milking programs.

[1] Statistical procedures to check the response bias found that respondents were not significantly different from non-respondents.

Table 3

Farm Management Technologies	Percent of Farms
Use a computer: personal or family use	60.2
Use a computer for farm record-keeping	48.3
Access info for the farm on internet	33.9
Use a dairy record program	65.5
Do seasonal milking	6.2

Evidence on the returns to new technologies:

Statistical procedures were used to check the increases in productivity and profits for a number of these technologies. Note that a number of these technologies produce on-farm benefits difficult to see on a whole farm level so that these results are merely suggestive of the benefits. Results on any individual farm will obviously vary a great deal.

Among the milking technologies, milking parlors seemed to be the most useful. After controlling for herd size, the data show farmers with milking parlors used one-third less time milking their cows. In the current tight labor market in Connecticut, such a labor savings can be vital. Farmers who had their animals on seasonal milking programs had marginally lower production and profits, though presumably longer winter vacations.

The animal care and feeding technologies were not shown to have a significant effect on either productivity or profits. In fact farmers with regularly scheduled veterinary visits had marginally lower profits. On the other hand some management technologies were correlated with improved productivity. Farmers who used dairy record programs, such as DHIA, had significantly more productive cows.

Using computers on the farm have not shown themselves to increase either production or profits. Other industries have shown the same types of results, with the main benefits of computers being in providing more and better information, making some tasks easier, and allowing a shift in time allocation and job responsibilities.

Recommendations

These survey results do not mean one should fire one's veterinarian, sell the TMR machinery, build a milking parlor, and join DHIA. They do imply that farmers should take a close look at the technologies they are using to determine which of them is truly adding to their bottom line profits. Many technologies that improve productivity may in fact be too costly to be profitable. In this period of historically low milk prices and ever shrinking margins between feed costs and milk prices, farmers should be wary of adopting anything that does not first and foremost increase profits.

On a more sober note, the high degree of adoption of technologies by Connecticut dairy farms suggests that, barring the introduction of a truly revolutionary technology, there is not a lot of room for great improvements in either productivity or profits. This implies that changes in prices will likely have the greatest impacts on a farmer's bottom line.