Program: Economics of Longevity in Dairy Cattle

J. W. Fisher

In Partnership With
Dairy Farmers

Program objectives:
- identify the optimum age for a dairy cow
- practical (optimal) culling rate for a dairy herd
- longevity strategy based on business motives
- measure the value of this strategy

<table>
<thead>
<tr>
<th>Program objective</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average NPV of worst ranked cows</td>
<td>$4,596</td>
</tr>
<tr>
<td>Average NPV of cows actually culled</td>
<td>$9,887</td>
</tr>
<tr>
<td>Average NPV of Heifers</td>
<td>$17,678</td>
</tr>
</tbody>
</table>

NPV is the Net Present Value of future earnings (based on contribution margin)

Findings:
Milk production will peak during a cow's fourth lactation, but farmers often will cull cows earlier. This study used an on-farm survey approach that focused on profit motives per cow, and thus has succeeded in predicting what farmers are doing and provides economic reasons why.

Cows are at maximum value during their fourth lactation, thus it is best to keep cows until the fourth lactation. Only 22% of culls were optimal. Most of the culled cows were in their first lactation. Each involuntary cull was found to cost an average of $5,091 in future earnings. It was found that culling the right cows at the right time can potentially save $495 for each cow in the herd cow per year. Heifers were clearly superior to low ranking cows. The implication is to keep all heifers as potential cow replacements.

In our case study, minimal culling rate was 55 cows replaced with 42 heifers: a culling rate of 6%. Net benefit was $168 /cow/year for all cows in the herd.

Cows generating less than their fixed costs should be replaced with a heifer. To do this 40% of cows needed to be culled. This is just about all the heifers normally generated on a farm during a year. The net benefit at this stage was $509 /cow/year. Altogether, proper culling has significant economic benefits to dairy farmers.

Conclusions:
- All heifers should be kept.
- Avoid culling before four lactations and don't favour older cows.
- If we could eliminate involuntary culling, a voluntary culling rate would be about 17%.

Support Appreciated from:

Community Benefits Include: Lower cost of cow replacement, a modest $100 saving per cow can result in an annual $4 million in savings.