

What Recent Dairy Crossbreeding Research Reveals

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Two studies within the last 15 years on dairy crossbreeding provide information quite useful to the dairy producer who is considering crossbreeding today. The first study, done in Canada between 1970 and 1986, used a Holstein line and an Ayrshire-based line to study lifetime milk yields of milk, fat and protein; a wide array of growth, health, reproduction and survival traits ; and the total influence of all these traits on lifetime net returns per female born alive. Their study covered the first three generations of crosses compared to pureline cattle born and in the five herds of the study at the same time. Results from this study showed crossbreds to have a 15-20% advantage in lifetime yields and lifetime milk value over the average of the parent lines. Some of the crossbred groups were equivalent to the Holstein pureline but none were statistically different. The researchers compared the first generation crosses with the two purelines to see which system generated the most replacements. The crossbreds produced 1.28 replacements for each female born compared to .7 for the contemporary purelines.

In New Zealand, about 18% of the national dairy herd is crossbred, mostly Holstein x Jersey. Investigators used results of performance of purebreds and crossbreds to evaluate the profitability of alternative breeding systems under their production system which is predominantly seasonal grazing. They developed a comprehensive model of performance and economics to estimate which system would be the best at the end of 25 years. New Zealand breeds considered were Holstein, Jerseys and Ayrshires. Straightbreeding and rotational crossbreeding using two or three of these breeds were compared. The economic analysis revealed the largest advantage in net income per hectare (2.5 acres) for a Holstein-Jersey rotational cross (\$505 NZ\$ per year) that was only slightly larger than for a Holstein-Jersey-Ayrshire three breed rotational cross (\$493 NZ\$ per year). Rankings were similar among the various breeding groups for net income per cow. For milk income, Holsteins and these rotational cross groups were nearly identical.

Results of these two studies confirm the benefit of crossbreeding on an economic basis. The key to using crossbreeding successfully will be to have a long-term plan which uses breed differences as well as breed combinations. The selection of individual bulls based on high genetic evaluations for production will still be critical.