to the development of acaracide resistant strains of tick. A crossbred animal based on a ½ Sahiwal ½ Friesian genotype, the Australian Friesian Sahiwal (A.F.S.) has been developed to provide a dairy animal with useful tick resistance characteristics to provide effective biological control of the tick population.

The tick resistance of sires in bull proving groups has been estimated since A.F.S. bull proving commenced in 1976. Bulls used in 1976 and 1977 were selected from a group which was ranked on counts of ticks resulting from paddock infestations.

Selections for the 1978 and 1979 groups were based on artificial infestation. The young bulls were infested with 20,000 tick larvae and the number of engorged female ticks appearing on the near side of the bulls was counted over a 5 day period. Counting commenced 18 days after infestation with the larvae. Estimations of tick resistance using this method have now been adopted as a standard for the A.F.S. breed development program.

Resistance of bulls in 1978 and 1979 groups as well as those used for bull breeding in 1979-80 has now been determined. Results are as follows:

	No. of Bulls Tested	Mean Resist.	Range
1978 B. Proving	8	98.0%	95.6 - 99.3%
1979 B. Proving	9	97.7%	95.2 - 99.2%
1979 B. Breeding	15	99.1%	98.4 - 99.9%

A tick resistance standard of 98% larval mortality has been set as a selection criteria for all A.F.S. bulls.

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THE IMPORTANCE OF OBJECTIVE MEASUREMENT IN A MODERN BREEDING PROGRAM WITH PARTICULAR REFERENCE TO MILKING SPEED

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The Australian dairy farmer at present has to rely on subjective appraisal of some traits used in his breeding program. When these can be objectively measured, more accurate and, in some cases, different information is available. The present system is a legacy of the early use of artificial insemination (AI) when farmers involved in progeny testing were so impressed by this new technology that their subjective assessments were biased in favour of sires used in AI.

One of the main concerns of the dairy-farmer today is herd health. However, despite improvements such as better milking machines and techniques, higher standards of shed hygiene and the use of antibiotics in dry cow therapy, mastitis is still a major problem in the dairy industry costing millions of dollars each year in lost production, increased herd replacement costs and providing competitive industries (e.g. margarine, soft drinks) with a very useful tool with which to permanently damage the orderly marketing of dairy products. In the absence of a readily available and reliable mastitis -

monitoring service to the industry the extent of mastitis infection in the national dairy herd cannot be fully assessed.

As a Simmental breeder born and educated in Germany I am still very interested in what's happening in the animal breeding world in Germany, particularly in regard to Simmental. I am impressed by the fact that in Germany and Switzerland animal health and breeding are treated as one subject. There is no guesswork in assessing traits, everything measurable is measured and evaluated. For example, milking ability is measured and recorded as "average milkflow (kg/min)". The milk remaining in the udder after normal milking is stripped out by hand and the amount recorded. As a result of this care in measurement the Swiss have found, in their crossbreeding program with Canadian Red Holstein (to improve milking ability, milk production, udder conformation and age at maturity by genetic shortcuts), a positive correlation between milkflow and incidence of mastitis, (4 issues of the Magazine of Swiss Simmental Breeders Association). They estimate the optimum milkflow for udder health as 3.6 kg/min. A milkflow of less than 2.0 kg/min is undesirable because of the increased labour cost (Institute of Animal Breeding ETH and Dairy Research Institute, Lieberfield). In practice this means that if you are breeding for increased milking speed you may also increase the incidence of mastitis in your herd. This brings into question our breeding programs where the objective seems to be out of the milking shed before milking starts!

The Swiss have now introduced lactose-testing of milk in some sections of the industry as an early indicator of mastitis. Combined with milkflow and handstripping records, it should provide a useful tool for preventing increased incidence of mastitis whilst still breeding for optimum milkflow with no hand-stripping.

REFERENCES

MITTEILUNGEN	4	Schweizerischer	Fleckvieh	Zuchtverband	2 Aug. 1976
"	2	"	"	"	20 May 1976
"	6	"	"	"	17 Jan 1977
"	5	"	"	"	24 Oct. 1978

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