

## A2 – A DILEMMA FOR THE GUERNSEY BREED?

Most Guernsey breeders will now be aware that milk protein is becoming an important issue for the Guernsey breed.

Some 75% of the world's 300 million strong dairy herd produces milk that contains the protein beta casein A1. There is a somewhat controversial claim, backed by 16 years of research, that this milk, which is drunk by most people in the western world, could be a cause of diabetes, heart disease, autism and schizophrenia in people with immune deficiencies. It is also claimed that the protein beta casein A2 is benign in this respect. Cows in the well-known dairy breeds, including the Guernsey, can produce either or both of the beta casein proteins. They can be A1/A1, A1/A2, or A2/A2. Research has shown that about 96% of Guernsey cows produce only beta Casein A2.

Recently, in a small town in northern New South Wales, Australia, A2 milk was launched quietly into the world marketplace. A2's backers believe it will help prevent disease and make them fortunes. A1 proponents argue that the evidence against ordinary milk has not been proved and that they are the victims of a scare campaign.

### Latest Medical Papers

The New Zealand Medical Journal recently published a paper entitled '**The influence of consumption of A1  $\beta$ -casein on heart disease and Type 1 diabetes**', (<http://www.nzma.org.nz/journal/116-1168/295/>) by Murray Laugesen, and Robert B Elliott. Two eminent medical professors, Robert Beaglehole and Rod Jackson, reviewed the paper. In their conclusion they state, 'The attraction of the A1/A2 hypothesis is the simplicity of the potential public health intervention, if the authors are proved correct. It would be reasonably straightforward to change New Zealand dairy herds to produce only A2 milk. The intervention would require no change in behaviour by New Zealanders and could be implemented with little personal difficulty for substantial health gain. For these reasons, we encourage Laugesen and Elliott to pursue this research. However, this research should not be at the expense of policy and programmatic research and must not distract us from the pressing need to act now upon what we already know'.

As Beaglehole and Jackson point out, these data need to be interpreted with considerable caution. Setting up trials that demonstrated "cause and effect" would be extremely expensive and time consuming.

The general view is that there may be quite some way to go before the hypothesis can be proved by evidence of cause and effect.

We all know the well documented and proven benefits of drinking milk which is a mixture of approx. 75% A1/ 25% A2. Virtually all commentators to date are making the assumption that drinking pure A2 milk to the exclusion of A1 is not, in itself, harmful. Or, put another way, they are assuming that A1 milk, at best, does not constitute a health risk and, at worst, is harmful. Nobody seems to be considering the possibility that A1 milk may confer some specific health benefits. In any properly conducted global survey of the relative health risks and benefits of A1 and A2 milk, one would have to investigate this possibility. It would be rather counterproductive for a country to convert completely to A2 milk and then find, thirty years down the track, that health problems in other than the CHD-diabetes areas were now on the increase!

## **High media profile**

There is no doubt that the activities of the A2 Corporation, which is promoting A2 milk (see recent issues of Guernsey World), has raised the general awareness of the A1/A2 argument in the public domain. Some people may now start to wonder whether drinking A2 milk might be better for their health. We must remember that there is no real proof of this at the moment, only an hypothesis drawn from evidence that many say requires much more research over quite a number of years. Many others would, however, say that the findings to date are compelling.

## **Unique advantage?**

The Guernsey seems to have a huge and unique advantage over all the main dairy breeds in respect of A2 milk, but that advantage needs to be quantified.

1. The Guernsey Breed is small – some 40,000 registered and recorded cows, 96% of which can be expected to be A2/A2.
2. Already A2/A2 nuclei are being identified by DNA testing in some of the major dairy breeds and these could very soon outnumber the whole of our breed.
3. The real advantage to the Guernsey is in the PRESENT status of the breed, which means that we are in a position to market either high content A2 milk (by bulk sampling of milk from the farm tank), or pure A2 milk (by DNA testing every cow in the herd). Those Guernsey dairies that can process and sell their own milk or join with other neighbouring herds to do this could even now reap a benefit from sales to a health conscious public. Guernsey milk producers can give their customers a choice. They can drink A1 milk safely if they wish but A2 milk might be better for their health.
4. Please remember that many countries have strict regulations about the admissibility of advertising claims for the health benefits of produce. There may also be trademark issues in respect of A2 milk. As with any new product, it is advisable to take legal advice before entering the market.
5. If at a future date there is conclusive evidence about negative health effects from A1 milk, it can be expected that the world dairy industry will move as quickly as possible to all A2 milk. This will of necessity require all cows to be tested. Guernseys cannot expect to be excluded from this process. Our advantage will then be that fewer cows in our herds will need to be culled.

## **Short or long term?**

From the above it is clear that the short-term advantage to the Guernsey could be considerable while the dairy industry awaits research results that may or may not require a momentous change in direction.

While that possible change is awaited or even if it does not materialise, there is likely to be a small but significant market for A2 milk. This could increase demand for Guernsey milk and products and even create demand for new herds of Guernseys.

In the long term however, the situation may be quite different. Nuclei of A2/A2 cows and bulls will have been established in other breeds. The Guernsey will then have to compete on more than one front. We should all remind ourselves that there are many criteria involved in the choice of breed when a farmer starts dairying or decides to make a change in the breed of cow that he milks.

## **Conclusions – Challenges and choices**

The foregoing leads me to conclude that the Guernsey breed cannot afford to abandon the goals that it has already set in favour of the A2/A2 argument, but we can accommodate the A2 challenge within our plans.

We have identified the traits in our breed that need improvement and a pilot Guernsey Global Breeding Programme is in operation. Guernsey breeders are faced with challenges and choices. We are challenged to develop a modern commercial dairy cow that will appeal to the modern dairy farmer. We have a very small genetic pool with which to work and we have some (at present) rather tenuous arguments about beta casein A2 to take into consideration.

It would be very prudent for Guernsey breed societies to identify and publish the beta casein (A1 or A2) status of all bulls. Our breed development committees need to measure what loss of selection pressure we are likely to sustain by eliminating all but A2/A2 animals from our breeding programmes.

For instance, the Management Committee of the Guernsey Island/UK Pilot Guernsey Global Breeding Programme has decided that it will not permit any A1/A1 bulls to enter the stud. The highest genetic merit calves are unlikely to be culled if they are A1/A2. The committee believes that at this stage it cannot afford to eliminate such young sires if it limits progress in other traits. The Beta Casein status of all bulls entering the programme will be published. It will be left to the individual breeder, after he has considered the facts, to choose whether he will limit his use of bulls to A2/A2 only.

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