

# Experience with Crossbreeding – From Headaches to Happiness

Kevin Prins  
Prins Dairy, Modesto, California

The Prins Dairy, owned by John and Kevin Prins, is located near Oakdale, CA. Our dairy has been in operation since 1971. Today, we milk 570 cows, and cows are grazed in the summer and free stall housed in the winter. All cows are fed a TMR once per day.

Prior to 2000, our herd was pure Holstein. For the most part, the Holstein breed served our operation well. However, as the years went by, frustrations began to increase with fertility and calf survival. The list of problems kept growing! Our local A.I. technician, along with a few other dairy producers, came to the conclusion that many of the frustrations were results of inbreeding within the Holstein breed.

A short time later, crossbreeding was implemented on our dairy. In the first years, several breeds were used, and none failed. But, as time progressed, some breeds rose to the top as our favorites based on functional type and production. We are now in our seventh year of crossbreeding, and we have had the opportunity to observe improvement in functional traits.

## Observations

### 1. Colostrum

Prior to crossbreeding, colostrum was fed by a tube feeder. Many of our calves had lost the newborn instinct to suck on a nipple, much less to get up and find the teat on their own. At present, an estimated 75% of our calves nurse on their own. Because the instinct of calves to nurse has improved dramatically, it has become more important than ever to keep our close-up cows clean and dry.

Colostrum quality has also improved. We have tested colostrum with the use of a BRUX meter and found that the Holsteins will range from 11-16, while the crossbreds will range from 18-25. It appears that this has nothing to do with the volume of colostrum produced. Crossbreds simply have a higher nutrient density in their colostrum. This could be fueled by a stronger immune system in the cow, perhaps an outcome of hybrid vigor. Is it any wonder why Holstein calves are recommended to be fed as much as 1.5 gallons of colostrum at birth? Our observation is our largest calves desire no more than one gallon. This might suggest that many calves, when force fed, receive more volume than their stomach can actually hold. We are sure we killed calves with the tube feeder in the past.

### 2. Calving ease and survival

During the final years with Holstein calves, we experienced a very high stillbirth rate. This was especially true with first-calf heifers. From a management standpoint, we felt like we were doing a good job watching the close-up cows. Currently, our stillbirth rate is less than 5%. The number of cows that require assistance at calving has also dropped. We are often amazed that even the larger calves require less assistance. Perhaps, they are formed differently than the Holstein calves. It might be selection for Holstein cows to walk “up-hill” has something to do with this. The crossbred cows seem to have more room in the cervix as well.

### 3. Transition cows

Our close-up cows continue to receive a DCAD ration. In the past, there was little room for error in this diet. Today, our crossbred cows transition very well, and we have virtually eliminated milk fever. Our crossbreds haven't gotten dislocated abomasums. Crossbred cows calve very easily. No post-calving protocol is used.

#### 4. Body condition

The average body condition score is much, much improved with our crossbreds. In some cases, this is a result of hybrid vigor, while in other cases it is because some breeds simply have more body condition. In general, crossbreds are genetically conditioned, not nutritionally conditioned. Therefore, a crossbred cow that “looks” heavy doesn’t have health problems related to over-conditioning. We find that crossbreds keep much better body condition while they are grazing. Our Holsteins have struggled with body condition, especially while on grass.

#### 5. Heat detection

Heat detection has always been done with tail chalk. Over the years, more and more hormone shots had been used to keep groups of cows cycling. As crossbred cows started to enter the herd, fewer and fewer shots were needed. Presently, no shots are used. In fact, many cows come in heat at less than 3 weeks fresh, and cows then cycle at 21-day intervals thereafter. The “extra” heats exhibited in early lactation are a big help in finding heats in general. Because the natural reproductive cycle of cows has returned with crossbreeding, pregnancy checks go very well. Cows are pregnancy checked at 40+ days. Once confirmed, no further confirmation is done.

#### 6. Conception rates

In a slow, subtle way, our Holstein conception rates had dropped to under 30%. This, combined with the inability to cycle, caused huge delays in calving intervals. Our calving interval had been more than 14 months; today, with the herd 90% crossbreds, it is 12.8 months. As we started to breed Holstein cows to other breeds, a slight increase in conception was noticed, and these Holstein cows seemed to have a lower rate of early embryonic death, too. A much larger difference was noticed as we started breeding our F-1 cross to a third breed. We now have greater than 45% conception year around. Over all, abortions in our herd are minimal. Reproduction is the number one economic factor on a dairy – not production! If a cow peaks at 140 lbs of milk per day but lacks reproduction, she means nothing to us.

#### 7. Mastitis and SCC

Many say that mastitis and somatic cell counts are mostly management related! Yes, management is important, and we are serious about providing a clean environment. However, our data shows that these traits are much controlled by genetics. We have observed a significant reduction in SCC in just two generations of crossbreeding, which is not likely to be possible within a pure breed. We have fewer cases of mastitis. Our crossbred cows seem to respond to mastitis treatment much better than our pure Holsteins. No treatments are used at dry-off.

#### 8. Feet and legs

Concrete will always be a challenge for cows. However, we seem to have fewer lame cows among our crossbreds than before with pure Holsteins. The typical hoof seems to be harder for crossbred cows. We select for a straight leg and a steep foot angle. A black hoof is also a desired trait in our program. Unfortunately, we still battle the hairy foot wart.

#### 9. Production

At the start of our crossbreeding adventure, we recall saying we were willing to give up some production just to get function back in the cows. To our surprise, production has been maintained very well. In fact, there is no detectable loss in milk volume. The components appear to rise with each generation. Reproduction is a major factor when looking at our daily tank average. The more fresh cows, the more milk!

## 10. Replacements

Just a few years ago, the number of cows in our dairy was dropping, as was the number of replacement heifers. Because crossbreeding has enhanced survival and reproduction so much, we have a surplus of cattle in 2007. WARNING: It takes years to climb out of a hole!

## 11. Identification

Identification is important when crossbreeding. Every cow and calf in our operation carries her complete (breed) parentage in her ear tag. We must know her past in order to make the best decisions for her future. This information is also kept in our office.

## 12. Sire selection

We do not use a mating program. Within each breed, we select bulls with positive evaluations for udders. Legs must be straight and the feet steep. Generally, we use the top bulls from each breed.

## **Our Plan**

As stated earlier, a number of breeds were used for crossbreeding during the first couple of years. Today, our preferred plan is to cross a Holstein cow with a Montbeliarde sire. The F-1 Holstein x Montbeliarde is then bred to Swedish Red. The selection process within both the Montbeliarde and Swedish Red breeds is superior, and the cattle show it. Then, our 3-breed crossbreds are bred to either Holstein (to restart the 3-breed rotation) or to Danish Red (as a 4th breed), and we are doing some of each. Data in the future will tell us which is best. When crossbreeding, the use of three or more breeds is VERY IMPORTANT, as is use of the best sires from each breed. We will NOT consider a two-breed cross.

## **Reflections**

Looking back over the past seven years, we feel very blessed! We have met many fine people from all over the world because of our switch to crossbreeding, and we have learned much from them. Also, America doesn't always have all the answers.

As our cattle continue to gain "vigor," our day-to-day quality of life improves, too. We are truly "having fun". A superb cow is a cow that takes care of her owner. To get many superb cows, we are selecting for the sort of cow we want, and NOT for the sort of cow we don't want.