Calf Rearing
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There seem to be as many different systems for calf rearing as there are calf rearers – but there are some integral components that you need to consider regardless of the system you employ. This article will serve as a quick reminder on some of the “fundamentals” for a great calf rearing system…

Transport from the paddock to the shed
Don't pack calves too tightly in the trailer... come back for a second load rather than risk injury to the animal. They need about 1m²/calf on the trailer. Make sure there is some bedding on the trailer too. If calves are likely to be in the trailer for a reasonable distance, ensure they have shelter from the wind/rain (some people attach a used grass seed sack to the front of the trailer as a wind break).

Colostrum
Calves need to drink colostrum within the first few hours of life (approx 2 litres in first 6 hours), this is imperative!! In a recent survey of calf rearers on dairy farms (Poukawa newsletter 2005) it was highlighted that on 92% of properties calves were picked up on a daily basis. Only 21% fed calves colostrum immediately on arrival at the shed and 30% did not feed for more than 8 hours after arrival at the shed. 35% of rearers reported that if the calves did not drink they waited until the next day before considering taking action. It is a concern that not all calves are fed colostrum on arrival at the shed – references indicate that with once a day collection systems more than 25% of calves could have received insufficient colostrum. – Failure to get colostrum into these calves is likely to compromise their performance (40% more die if they don't have colostrum)!

Trials have shown that leaving the calf on the cow for a few hours then giving two feeds of colostrum in the first 12-24 hours of life gives the most effective immunity transfer.

Shed Environment
Hygiene – Use disinfectants to keep bugs away e.g. Virkon. Also, an effective effluent system is required.
Dry and Draught free – This means dry from the rain and climatic elements AND dry from underneath with effective bedding. The ideal temperature for a calf is 17 °C but the air temperature in New Zealand is unlikely to be a problem as long as there is no draught, the calf is dry and housed on clean dry bedding – this calf would be fine even when outside temperatures reach 0 °C. Every 5°C drop below 0 means an increase in feed requirements of about 10%. However, once exposed to wind and rain, feed requirements increase dramatically.

Feed
Whatever feed you choose to use in your system, it is important that it is fresh (or well preserved in the case of stored colostrum).
Some people feed calves once a day – others twice. If you are researching different types of systems then contact the Poukawa Research Farm for information (06 874 8757). This goes for meal too – don’t use any “left overs” from last season, as soon as you crack open cereal grains they will start to deteriorate in quality – fresh is best (although meal should have a shelf life of at least 3 months). Bedding straw and hay should not be too dusty.

A calf has a high requirement for protein (young animals have more “meat”(protein) in their live weight gain – older animals tend to have more “fat” in theirs) young growing calves need a starter meal of approx 18-20% crude protein. Look for ingredients such as soya bean meal or copra to supply this protein in preference to palm kernel meal. Once calves are grazing some pasture (or eating more meal) you can change them on to a lower protein meal (16% crude protein). I recommend that you include a coccidiostat (such as Bovatec or Rumensin) in your calf meal as a precaution – but if you do then don’t let your dog or horse eat it. You shouldn’t feed it to your chooks either(it won’t hurt them but you shouldn’t eat their eggs).

Rumen Development
The faster you get calves adapted to digest plant cell walls, the better (and the cheaper)!! This means that you need to develop their rumen as much as possible so that they have a smooth transition from milk to pasture. Milk causes no rumen development at all because it by-passes the rumen and goes straight to the fourth stomach (abomasum - similar to a human stomach) – as an interesting aside... calves suckling and wiggling their tails madly is a good indicator that the oesophageal groove (channel that forms to direct the milk to the right stomach) is in fact operating!! The concentrates (barley/maize) in calf meals assist in rumen development to a greater extent than grass, straw or hay do. This is because the products of their fermentation in the rumen vary in proportion with these different feeds – and some fermentation products are more effective at developing the projections on the rumen wall (papillae) that absorb nutrients. There is also some evidence that those products that you add into the meal to stop coccidiosis (namely Bovatec or...
Rumensin) also help hasten rumen development. The better developed are those papillae then the more surface area there will be in the rumen to absorb all the “goodies” and nourish the calf.

You should introduce meal early (in the second week of life) to encourage calves to eat it - good quality hay is also good to strengthen the rumen muscles and aid papillae growth (Lucerne hay is a good option). Some people have calves on grass while they are still fed milk. This will also provide some transition (regardless of whether you feed meal) – **BUT** if you have big strong calves fed **ONLY** milk and then you wean them on to grass (with or without meal) – expect a check in their growth. Those calves will have to deal with harsher climate, new stressors and won’t be equipped with a working rumen immediately. Rumen development (with or without meal) is integral to the continued growth of calves post weaning.

When you do wean calves make sure they are grazing on high quality pasture – they still have a high energy requirement and need to be gaining weight (especially if you want the best production out of your future dairy herd replacements). Too often calves are weaned and spend the summer on dry, tough old pasture that isn’t “good enough for the milkers” – remember, calves need good quality pasture too.

**Clean Water**
Calves should have access to clean water. Their water requirement will increase with the amount of dry feed in their diet. The availability of water has a significant impact on liveweight gain.

**Signs of ill-health**
Observation is the key to detecting sick calves early. Make sure you have a thermometer in your kit to check out if a scouring calf has an infection or just over indulged at breakfast. As a general rule, calves will have a normal body temperature with a nutritional scour (38-39.5°C). Calves affected with a viral or bacterial infection will always show a fever above 39.5 – 42°C. Look out for calves that have droopy ears, dull, sunken or overly leary eyes, or abnormal posture (this includes those that won’t stand up!).

Recently, calf rearers identified scours as the biggest problem they had when rearing calves. Diarrhoea results in a loss of water, salts (electrolytes) and energy from the calf. A scouring calf urgently requires water and electrolytes to correct imbalances and must also have a source of energy. Most commercially available electrolyte products are suitable for feeding with milk (but check the packet label just in case – there is a chance that if fed in conjunction with milk it will upset the “milk clotting” required for the calf to digest the milk. Home made electrolyte mixtures are often used however ensure that you have the recipe correct – it can be dangerous to get salt concentrations out of balance – consult with your vet if you have concerns.

**Internal Parasites**
Once calves are grazing they will be burdened with internal parasites that live as eggs in the pasture and hatch once they are eaten by the calf. It is important that you have an effective programme for dealing with these parasites – your vet should be able to help you with this.

**It’s part of your business…**
The recent Poukawa survey also highlighted that over half of the calf rearers surveyed on dairy farms had no idea how much it was costing them to rear a calf. Calf rearing is an important part of your business **BUT** there are expensive and cheaper ways to meet the same end – don’t use an open cheque book approach to your calf rearing system!!

**What to do if you have problems….**
There is a lot of information out there for people rearing calves. There are usually training seminars around calving time that you can use as a refresher or to learn any new findings. Speak to your vet or to another calf rearing colleague for help, or write in to the daily digest for women in dairying! Most importantly, prepare well and react quickly!!

**Summary of the integral components of rearing calves:**
1. Transport from paddock to shed
2. Adequate colostrum
3. Calf shed environment
4. Quality feed
5. Rumen development
6. Adequate water
7. Good people that can identify a sick animal!!
8. Know what your system is costing you – it is all part of a larger business!!
For more information:
Farmnet
Dexcel
NZMP New Zealand Ltd Animal Nutrition calf rearing guidebook.
Poukawa Research Farm – Calf Rearing newsletter (ph 06 874 8757), SIDE proceedings 2005 pg 45.

Good Luck!!!

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