Herd Investigation Report
Calf Housing Problem

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Concern:

On July 1, 1987 the western Wisconsin farm was visited to investigate and advise on their calf raising facilities. The main concern was the poor health and death losses in the neonatal animals.

History:

The dairy herd consisted of 80 milk cows and all young stock. All bull calves were kept and fed out for beef. Since November, 1986, 20 calves died. These calves showed signs of pneumonia, scours and chronic wasting. Other problems noted included umbilical sucking and a leg problem. At the time of the visit the management system was already modified due to the calf death problems. The history will be presented starting with the calves and working up to the cows.

Newborns:

The calves are born in the barn. At birth they receive IBR and PI-3 (Nasalgen, 1 ml/nostral), Rota-Corona (Calf Guard, 3 ml orally), two quarts of colostrum within 20 minutes and the navel is dipped 2 times a day for three days. They are then put in the closed calf pen at the end of the barn and fed colostrum for three days. After three days they are switched to milk replacer. The milk replacer is; 22% protein, 20% fat and .05% fiber. They are offered hay and grain within the next week. The hay was a first crop grass hay and the grain was a coarse ground mix from farm stored grain. The grain smelled moldy and had a lot of husk and cob present. The mix consisted of:

5636 lbs. corn and oats	10% protein
898 lbs. soybean oil meal (SBOM)	44% protein
6842 lbs. total batch weight	14% protein for mix

When the calves reach 150 # or there are 8 in the cow barn pen they are then moved to a small shed or the small barn, where the older heifer and bull calves are kept. Crowding is a big problem in this age group due to the fact that all calves are raised. Most calves suckle other calve's navels in this group rearing system. Calves were observed to have navel infections and abscesses.

150 to 400 lb. calves:

These calves are in the small barn (see diagram 1) and have come from either the cow barn pen or the shed pen. They are kept in one large pen in the summer and three pens in the winter. In the summer they have access to the gravel lot to the south and west of the barn. The heifers and the bull calves of all sizes are kept together in the summer. They are fed 5 lbs. of the grain mix and 1# of soybean oil meal per head per day and the first crop grass hay is fed free choice. The barn is cleaned every three days and bedded with chopped bedding. The grain is dumped on a pile on the mow floor and is exposed to the weather, cats and rodents. This feed is the same as the smaller calves and was moldy smelling. Fourteen dry cows are also housed in this barn in the winter. The east end contains tie stalls for them and a silo is present for corn silage. The hay mow has first and second crop hay in it, being primarily first crop. The chopped bedding is blown onto the mow driveway area. An old milk house is attached to the south side of the barn. The calves presently exit through here in the summer. Some problems noted in this facility were; naval sucking, crowding problems and ventilation problems in the winter.

CALF DATA

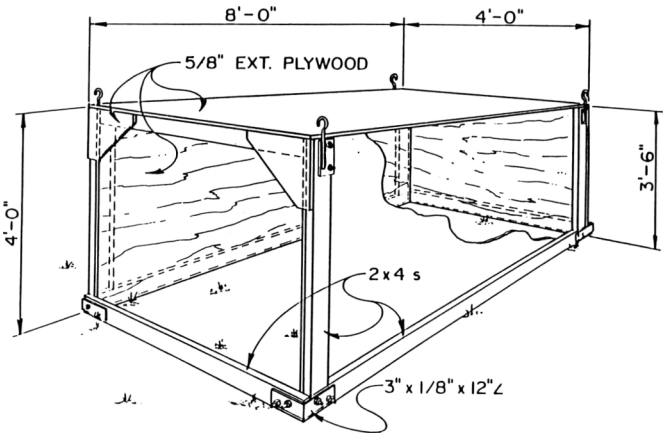
Calf No.	Age/days	Condition	Weight	Girth	Height
100	130	6	231	41.5	36
101	130	5	238	42	37.5
108	100	4	192	39	36
110	75	4	192	39	35
109	75	6	211	40	36
111	70	4	148	36	34
112	60	4	124	34	32
116	60	6	162	39	34.5
118	10	—	100	31	32
119	10	—	105	32	32

Condition Scale

Chart	1	2	3	4	5	6	7	8	9	10
Score	1	1+	2–	2	2+	3–	3	3+	4–	4

Average Weight = 170
Average Height = 34.5
Average Condition = 5 = Score of 2+

FIGURE 1. The Calf Hutch
This drawing shows construction details for an open front plywood calf hutch. A 2 x 6 can be used across the base of the open front if desired as a further aid in retaining deep bedding in winter.



The barn was also dark and ringworm is a problem. Heifer data is on an attached sheet.

Over 400 lbs.:

These calves are either put on pasture or taken to a rented farm. In the winter they are left in the small barn until crowding warrants moving to the rented farm. The pastured calves are also fed grain. The bulls are castrated before being moved. The animals at the rented farm are kept in one large lot and are fed at a bunk. The heifers are kept here until springing or bred, depending on the season. The steers are kept here until they are sold. Some heifers and the dry cows are kept on pasture in the summer. A problem here was that a facility to house all the animals at home may be needed in the future, since the farm presently rented may be sold or the lease may not be renewed.

Cows:

The cows were housed in an adequately ventilated tie-stall barn. They were vaccinated in the fall with BVD, IBR, PI-3, Lepto and are dewormed and deloused. Lepto boosters are given at 6 month intervals. The cows calve in the stalls in the barn. A concern about hay spoiling in the cow barn mow was expressed. The mow roof starts at the floor level and is round. Tin covers the trusses and the mow is virtually air tight.

Recommendations

Newborns:

The calf care at birth is very good. These procedures should be followed according to the veterinarian's recommendations due to the current disease problem. When the calf is dried off after birth, it should be taken immediately to a calf hutch. The calf hutch should work well on the farm in the lot south of the small barn. Hutches should also decrease the disease problems, the navel problems, and the over crowding. Hutches should decrease later naval sucking due to the fact that the calves are separated. Disease should also decline.

Some information is included on construction of calf hutches and here are some general guidelines:

1. Never close the front of the hutch, use a fence out front.
2. Rear vents cause drafts which are bad.
3. Deep bedding is necessary in the winter for insulation 8 in. of corn stalks or sawdust work well then covered by a bale of straw.
4. Hutch walls should meet the ground all the way around.
5. Place the hutch on a gravel base with good run-off.
6. Keep at least 4 ft. between hutches and don't locate under exhaust fans to decrease disease spread.
7. In very cold weather more energy has to be fed to prevent hypothermia of calves in hutches.

The milk replacer fed is very adequate but a sour colostrum program may reduce wasted colostrum on the farm and decrease replacer costs. A calf starter should be started at 1 week and should preferably be at least 18% protein, 70% TDN, with no more than 5% fiber and balanced with vitamins and minerals. Hay is not needed until 3 to 4 months but if provided should be 18 to 20% protein. The grain should be coarse ground and palatable.

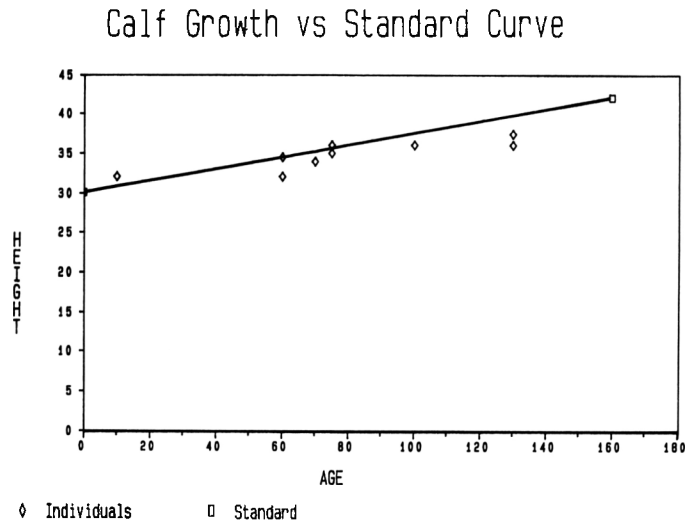
These calves can be kept in the hutches until 3 or 4 months to decrease crowding in the small barn. Selling some bull calves in times of crowding should also be considered to increase the care available to the heifers and also to decrease the health risks on them. At this point they can go to the small barn calf facility.

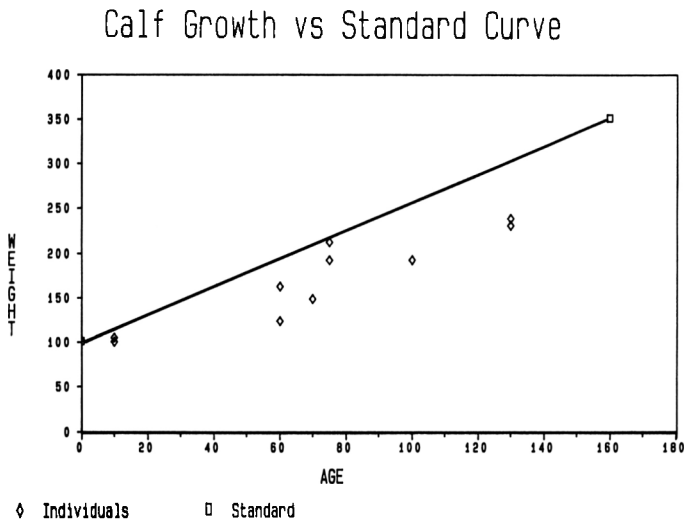
3 months to 6 or 8 months:

These calves can be effectively housed in the small barn with some changes in environment and grouping. From the calf hutches the calves can be brought in here and put into group pens. Separation of the bulls and heifers should be done. This will decrease competition for feed and care and allow more individual care required for each sex. The calves should also be grouped more by sizes so the larger animals do not bully and steal feed from the smaller animals.

To modify the barn to insure a healthier environment there are a few recommendations. Diagrams are included on attached sheets.

First, the ventilation must be changed to keep the air fresh and the air from the dry cows away from the calves. The barn is 20,655 cubic feet (90′ x 27′ x 8.5′). With 4 air exchangers per hour in the winter, 1377 cubic feet per minute must be moved out as a minimum ventilation rate. A center ceiling type air inlet would work well. This duct should extend the length of the barn and it is practical to draw the air from the mow by inlet boxes. See sheet for specifications. This air will be warmer in the winter and cooler in the summer. For this system to work, all doors, hay chutes and cracks must be sealed to prevent drafts and leaks. One by 10 inch boards can be nailed to the ceiling along the wall and packed with insulation. This will help to seal the leaky area where the rafters meet the wall. The winter ventilation will come from the one fan in the dry cow area. A heat conservation box





around the fan and down to 15 inches from the floor will help concerve heat. It should be made to open at the top in the summer and draw out the warmer air. This should be adequate and would help keep the air from the dry cows away from the calves. In the summer, with all three fans needed there is still a 2000 cfm deficit for summer ventilation. This should not be a problem if the calves have access to the outside and the dry cows are not inside. Spring and fall may be a problem if the outside access is allowed to remain open. These openings have to remain closed for the ventilation to work. This aspect at these times of the year has to be watched extremely close or severe health problems may develop.

Secondly, the feed storage should be changed to improve sanitation and feed handling ease. The old milk house would make an excellent calf care center. Hot water, grain, replacer, sour colostrum and utensils can be stored here, close to the hutches and older calves. A dutch door to the calf barn would allow use of the fan in the summer and sealing tight in the winter. In the summer calves can still exit through here with a simple gate set up. This area can be insulated and heated if need be. The feed amounts currently fed are fine. A more palatable grain and a higher quality hay may be considered. This should increase the body growth which is below average. See attached graph.

Thirdly, the grouping should be done by sex and more closely by size with possibly 4 pens or more. In the summer with lot access this separation is still important. Use of two door will allow two groups at least. Florescent lights can be added to brighten the barn. White-wash or paint will also brighten the area. The ringworm problem may be less with better health and nutrition or can be treated with topical Thiabendazole. Overcrowding should be avoided for health reasons.

Older heifers:

Upon leaving the small barn these animals go to the rented farm. Here separation by sex should be done. This will again cut down on competition for feed by the larger older steers. The steers should be put on full feed. A flow through facility at home would work nicely. An example of this sort of facility is included. Flow through pens would allow size separation and individual feeding of the groups. Breeding would also be easier and a chute system should be built in for easy catching during vaccination, deworming and breeding. The calves in the hutches could be put directly into this sort of facility eliminating the indoor housing totally. Time should be spent looking at ideas and the one chosen should then be evaluated for ventilation, cleaning and ease of use problems.

Cows:

The neonate is subjected to many pathogenic organisms when born in the cow barn. From discussions during the visit a calving pen area is being considered and would be an excellent addition to the barn. The group calf pen might be considered as a calving area option if it is added on to for more room.

To keep the spoilage to a minimum in the hay a crop preservative can be used. Plans of starting this sort of program were mentioned. Crop preservation will cut down on the heating of the hay which is the problem in this mow due to the fact that heat and moisture can't escape.

Roof cupolas can also be used. They will allow a "Chimney" effect to carry the heat and moisture away. An active wind driven device would cause problems because no inlets are present. Four -4 ft. cupolas may work very well.

Summary

Due to the lack of calf raising room and the fact that all the calves are kept leads to a serious stress problem. Health of the calves is severely compromised leading to losses. The recommended changes should greatly cut down on the problems seen. Future economics may then allow for the addition of a new facility that will move all the animals home.