Herd Investigation Report

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Introduction

Case farm 7714 was visited by the U.W.-School of Veterinary Medicine, River Falls Support Facility consisting of Dr. Dennis Van Roekel and a team of four students including the main investigator Pat Hady. The farm had been previously investigated about a year earlier (7/29/86) for the main complaint of anestrus in higher producing cows. The goals of that investigation were to evaluate his ration and fine tune it to increase milk production and butterfat. Their findings were that the milking cows were low in energy and they suggested the feeding of higher energy ration which was followed through by increasing the amount of grain fed. They also suggested a different feeding regime should be given to the heifers instead of feeding them the lactating cow grain formula. This was followed through by implementing a different grain ration to each group.

This report will be used as a follow up to the previous one and to analyze the changes and help further the production at this farm. The report data was taken on 5/20/87 and the parameters measured included body scores of the milking cows, dry cows and heifers. Weights, height, and heart girth were measured on all the heifers and selected milking cows. Evaluation of the feedstuffs, water supply, ventilation and feeding schedule was performed. Rumen samples were taken on the higher producing cows to evaluate rumen pH. Blood sample were taken from a fresh, high producer, mid-lactation and late lactation cow.

The herd at this time consisted of 38 milking cows with 8 dry cows with a rolling herd average of 20,100 with 3.5% fat and 3.05% protein. The average daily production of milk was 65 lbs. with milking three times a day. The cows were getting fed four times per day with feedings varying between 6-8 hours apart.

As a complete evaluation of the farm the milking techniques were briefly looked into. The farmer had not changed an inflation in over 5 years, never touched an udder, and ran ten milking units simultaneously in a one man operation. Milk reportedly ran back into the claw and milk line and the milkers were left on to strip the udder dry. Never the less, the somatic cell count was below 200,000 and bacteria was around 6,000 and no clinical cases of mastitis were reported at this time. These findings are of interest in this introduction to allow the reader insight into the **unique** experiences this farm provided.

Lactating Cows

Feeding Regime:

All the milking cows were fed roughly 10 lbs of haylage per feeding (40 lbs./day) with a grain mix either at 20 lbs./day if she was milking over 50 lbs. or at 10 lbs./day if she was milking below 50 lbs. Soybean meal was added to every cow that was producing over 55 lbs. of milk/day at a ratio of 1 lb for every 5 lbs. of milk at a maximum of 8 lbs of SBM/day. Mineral mix was top dressed at 4 oz./day to all the cows producing over 50 lbs./day. Free choice trace mineral block was also available and the herd consumed about 10 lbs./day. Two supplements were given, one, Peak Power Pass, was given to all cows under 120 days of lactation at 8 lbs./cow/day. The other was Booster Pak, given to all open cows, top dressed around 3 oz./day.

The grain mix was made up of rolled corn, roll barley, trace mineral salt, Dairy Phos, BiCo-Mag 50, Milker Ration Pre-Mix, Selenium, Zinc Mixer, Molasses. The Dairy Phos. contained 43% Mono-ammonium phospate, Phosphorous (16%) and a trace of iodine. BiCo-Mag is a buffer with 50% sodium bicarbonate and 10% magnesium with the rest calcium (3%) and potassium (.5%). The Milker Pre-ration is a vitamin supplement of Vit. A, D, and E. The Zinc mixer provided a supplemental source of dietary zinc.

The mineral mix consisted of Super 10 Min, Free-Flo Cal, Selenium and Molasses (liquid & dry). The Booster Pak is a vitamin supplement containing Vit. A, D, E, K, Niacin, Choline Folic Acid and trace mineral Zn,Fe,Cu. The Peak Power Pass is a special supplement for early lactating cow because it contains calcium (2.2%), protein (30%) with 55-60% bypass and 785 mg/lb of Niacin. The Super 10 Min. is made up of calcium (22%), Phosphorus (10%), salt, Se and Vit. A,D,E. Calcium carbonate made up 95% of the Free-Flo Cal to finish out the mineral mix and supplements used.

The haylage that was being fed had been just used up two days before the investigation of the farm. Green chop was now being fed and would be used for next year's forage. A sample was taken and submitted for analysis. On a dry matter basis the feed was 17% protein, TDN est. 60.2%, Ca .83%, P .36%, Mg .25% and K .36%. See attached analysis form for further data. We also evaluated the supplements for a deficiency in Niacin and found the ration containing 8.13 g/day, above the recommended 6g/day.

Housing

The milking cows were housed in a stanchion barn with adequate room for the cows to lay down. The ventilation was reviewed and found to be adequate. There was some question if there was adequate inlet. The milk house was dirty and the cats were being fed on the bulk tank. Stray voltage had been tested in the barn and the tests were negative.

Water

Each cow had her own water cup, the cups tested were in good working order with enough pressure and volume. The water was tested yearly for nitrate and were negative. The water was clean, cool with no smell.

Cow Data

All the cows were evaluated on body condition with the average being 3.1. Every fifth cow was weighted with an average of 1342.2 lbs. Two of the higher producing cows were tested for rumen pH with an average of 6.65. To help analysis our data more completely we graphed **DAYS OF MILK vs. BODY CONDITION SCORE (see graph)** and saw the general trend which is normal for lactating cows. They came into lactation around a 4- then dipped to a low around 165 days of -3 and rose to a +3 at the end of the lactation. Also plotted on this graph was the data from last years report, we can see the increase in condition due to the increase in energy fed if we compare the two curves.

Dry Cows

Feeding Regime

The dry cows which were housed in the barn were being fed 10 lbs. of Cow grain mix/day. The dry cows housed with the heifers in the pole shed were fed 10 lbs. of Heifer grain mix. Each group was fed haylage free choice in which 25 lbs was consumed daily.

Housing

Eight of the dry cows were housed in the stanchion barn along with the milking line. Three of the dry cows were in the pole shed area with the heifers. The division of these groups was determined by the available space and mood of the herdsman. Complete evaluation of the pole shed area will be done in the section with the heifers.

Water

The water supplying the dry cows was the same as the lactating cows which proved to be adequated in all parameters.

Cow Data

The average weight for the dry cows was about 1400 lbs and the body score average was +3. No rumen samples were pulled from these individuals. From the ISU Dairy Ration computer analysis of the dry cow ration the Ca/P ratio was 90/50 and all other parameters were at recommended levels.

Heifers

Feeding Regime

The heifers (6 months-freshening) were fed free choice haylage from the bunk wagon which was just being changed to fresh chop due to the lack of haylage. He estimated each cow was eating roughly 25 lbs./day. The Heifer grain mix was different than that which the lactating cows were getting. They were being fed 10 lbs./day. No supplement or minerals were being fed and TM salt was free choice in the area.

The grain mix was made up of rolled corn, rolled barley, pelleted soybean meal, Super 16 Minerals, N-Rich Zinc Mixer, Selenium and 6-Stock-Aid. The Super 16 Min. had a one to one ration of calcium to phosphorus each 16% of the product which also contained salt, Se, iodine and Vit. A and D. The Zinc mixer was a source of zinc and the Stock-Aid contained Vit. A, D and E. The haylage was the same as that fed to the lactating herd.

Housing

The heifers were being housed in a pole shed with a large area of pasture. The area was normal as compared to other similar operations. The ventilation was via natural circulation which seemed to be adequate when we were on the farm.

Water

The water was supplied in a water tank which was filled via a garden hose and regulated with a float devise. The tank was full when evaluated but the float devise was not working. The tank was placed on the other side of the fence to the pasture area so location and access is questionable. Three of the younger heifers were housed in a "chicken coop" next to the pole shed, their area was dirty but they had a separate water tank which was maintained in the same manner as the heifer's.

Cow Data

The average weight for the heifers was 850 lbs. and the average body score was 3. To evaluate the weight of the heifers we graphed our data to compare to the idea **AGE versus WEIGHT chart for holstein cattle** (see graph). Both the curves of **WEIGHT** and **HEIGHT** were similar to the idealized curve used to evaluate these heifers. Also graphed was the data received in last years report, when compared they are very similar and suggest that the replacement management was adequate even though some of the manage-ment techniques were questionable.

Post-Weaning Calves

Feeding Regime

These calves (3 months to 6 months) were fed free choice

of the Cow grain mix and haylage two times a day with no mineral or supplement added. They also received soybean meal twice a day at 2 lbs./day.

Housing

These calves were housed where ever in the barn they could be fit. Some were in the feeding alleyway, others were along the walls of the barn where you walked. This was because the calve pen was under construction for the last two years. They seemed to be doing O.K. but this investigator questions the use of this management technique. Ideally, you would want your calve separated from the adult herd to decrease pathogen spread.

Water

The water was provided via a bucket system manned by the herdsman. The time we were there, there was no free water access for the calves tied in the barn area and the calves in the pens had one working water cup. This "Armstrong" system is inadequate for these animals. They should have free access to water at all times.

Cow Data

The average body condition score for this group of animals was 3 and the average weight was 412 lbs. When graphed out on the **AGE vs WEIGHT** curve their curve was similar to the idealized curve. However the *AGE vs GIRTH* curve showed these animals smaller than expected which was unusual because the weights and girths were taken by taping the animals. The two curve were from different sources which could explain the differences.

Neonatal Calves

Feeding Regime

The young calves are fed colostrum as soon as possible and as much as possible. Then for the first 10 days they are fed whole milk then placed onto a Milk Replacer at about 1 lb./day. The milk replacer contains 10% crude protein, 10% fat, 15% fiber. They are fed this via a bucket two times per day. The calves are started on the Cow grain ration free choice and 2 lbs. of soybean meal/day and are weaned around 10 weeks. There was no antibiotic in this feeding schedule.

Housing

These calves are generally placed where ever there is room. When we were there a newborn was in the feeding alleyway tied to a post. Here again, we see a modification of the housing due to the inability to finish the reconstruction of the calves area next to the stanchion barn.

Water

Same as for the post-weaning calves, water is brought to them in buckets with no free choice or regular access to water.

Cow Data

Average body condition score was around 3 and average weight was around 200 lbs. Generally the calves look good despite the housing and water situation, these deficit were probably made up due to T.L.C. of the herdsman.

Summary & Recommendations

1. *Ration*

The analysis of the ration fed was programmed through the ISU Dairy Ration Computer program.

(A) The analysis for a cow producing 65 lb of milk/day was run through the program using the feeding regime of the Rundhaug farm. The ration consisted of the Cow Grain Mix, Haylage, SBM, Mineral mix but did not contain the Peak Power Pak or the Booster Pak.

The ration was sufficient in energy, protein and the Ca/P (199/104) balance was correct. The last analysis said the previous ration low in energy, so molasses was added to solve this problem.

The ration was low in salt and trace minerals. Presently he is feeding 2.0 oz of salt, which is below the recommended 3-5 oz. This deficiency can be solved by adding 100 lb of TM Salt to the Cow Grain Mix (see calculation) to up the salt to 4.0 oz. and have the trace mineral in line.

(B) The ration was also run for a cow producing 90 lbs of milk/day. The grain, haylage, SBM plus the Peak Power Pak and the Booster. The ration was adequate in energy, protein, Ca/P (250/104) balance and adequate vitamins and low in salt. These can be corrected in the Cow grain mix as with the 65 lb cows.

From the blood work, we saw high BUN (28,22) and albumin in the cows in midlactation due to over feeding of protein. From the calculations (see blood) the feeding regime of SBM is adequate, but the supplementation with the Peak Power Pak (2.7 p.lb/day) is causing the high protein. I suggest a re-evaluation of this practice to lower BUN and save $$$$$$$.

(C) The dry cow ration was run with the energy and protein in line with the requirements. The Ca/P (90/50) was a little above normal but no milk fever have been seen. I have no recommendation on this.

(D) The heifer/dry cow ration proved to be balanced with the Haylage and the Heifer grain mix. The energy, protein, Ca/P balance were all in line.

(E) The neonatal calf and post-weaning calf feeding regime was adequate in method and technique.

(F) Magnesium is low both from the blood work and the

computer, suggest that increase amount of Mg fed by increasing supplement in ration (BiCow-Mg) by adding to the grain ration about 20 lbs.

2. *Water*

The only recommendation for the water would be in the pole shed area. The water tank should be placed in a more central location and the float devise fixed so the tank will remain full without maintenance.

3. *Ventilation*

With the rough evaluation of the ventilation there was a question whether or not there was adequate inlet volume to allow full advantage of the fans to circulate air.

4. *Calve/Young Heifer*

The multiple problems involved in this aspect of this farm will be solved when the reconstruction of the pens is finished. Always need to have access to water for these young animals and need to house away from the adult animals.

Calculation for Recommendations

Ration: *Calculation for salt and trace mineral:*

Present ration:

1) Salt in grain mix TM Salt

-uses 36 lb of TM salt in 6469 lb batch which is .5% of batch is salt

-feeding 20 lb/day (.5%) (20)= .1 lb of salt/day, transfers to 1.6 oz.

2) Salt in mineral mix Super 10 Min

-5.25% of Super 10 is salt, feeds 200 lb in 497 lb batch which is 10 lb of salt in batch or 2.0% salt feeds 4.0 oz/day which is 2% salt=.08 oz

Total Ration: 1.7 oz./day (not including free choice)

Recommended Levels: 3-5 oz./day

helps to increase DMI and water consumption to increase production and fat %.

If added to Grain mix, total of 100 lb of TM salt will have a total of 4.6 oz. salt in ration plus cover trace minerals.

-100 lb of TM Salt in 6534 lb batch=1.5% (.015) (20)=.31 oz or 4.6 lb/day

-also via computer analysis the trace minerals will be in line (I, Co, Fe).

Ration: *Calculation for amount of protein fed.*

Forage: $_{[}(17.0/4)\times 1_{]}(10)$ = 52.5 lb of milk: above this amount need to supplement

SMB: 1 lb of SBM/5 lb of milk over 55 lbs. so feeding 2 lb of SBM/10 lbs of milk

e.g. For 65 lb of milk, need to supplement after 52.5 lb of milk given so feeding 2 lb of SBM to make up the rest of the protein.

e.g. For 90 lb of milk, need to supplement after 52.5 lb of milk given so feeding 7 lb of protein to balance the protein need of the cows.

With the regime that this farm was following by supplementing the rest of the protein need via SBM, they were meeting the requirements needed for production in this herd. The problem arises due to the feeding of the Peak Power Pass which is 30% protein with 9 lbs being fed gives 2.7 lbs of extra protein. The protein is a concern due to the high BUN's in the herd and the waste of money with no gain back.

Blood Values

Cow #	Na	K	Ca	Mg	TP	Alb	Glu	BUN	SAP
31	136	4.5	9.0	2.2	8.5	4.0	50	28	125
26	138	4.5	9.8	2.1	8.2	3.8	50	13	60
8	138	4.8	10	2.0	7.6	3.5	50	10	25
37	140	4.8	10.4	2.0	7.8	3.7	46	22	50
13	140	4.4	9.0	2.0	5.7	3.2	50	11	130
44	136	4.3	9.8	2.2	8.3	3.5	50	18	60

Blood Summary

Cow 8: Dry, Pregnant, 1420 lbs., Body Score 3
Mg— low normal
all others WNL

Cow 13: Fresh, Open, 1288 lbs., Body Score 4
Mg— low normal
all others WNL

Cow 26: Late lactation, Pregnant, 1370 lbs., Body Score —3
Mg— low normal
TP— high normal
Albumin— high normal
all others WNL

Cow 31: Mid-lactation, Open, 1125 lbs., Body Score —3
Ca— low normal
Mg— low normal
TP— high normal
Albumin— high normal
BUN— high (28)
all others WNL

Cow 44: Fresh, Open, 1110 lbs., Body Score 3
Mg— low normal
TP— high normal
all others WNL

Cow 37: Early lactation, Open, 1260 lbs., Body Score 3
Mg— low normal
BUN— high (22)
all others WNL

Feeding Schedule:

(1) Lactating Cows:
Feeding 4x/day, Milking 3x/day
a. Haylage — 40 lbs. day
b. Cow Grain Mix — 20 lbs/day over 55 lb. of milk/day
— 10 lbs/day under 55 lb. of milk/day

c. Soybean Meal — 1 lb/5 lb. of milk over 55 lb. of milk, max. 8 lb.
d. Mineral Mix — over 50 lb. of milk, 4oz./day top dressed
— TM salt freechoice
e. Peak Power Pak — 9 lb/cow/day to cow up to 120 of milk
f. Booster Pak — 3 oz. to heavy cows

(2) Dry Cows
a. Haylage — fed free choice (25 lb.)
b. Heifer Grain Mix — 101 lb/day
c. TM Salt — free choice in area

(3) Heifers
a. Haylage — fed free choice (25 lb.)
b. Heifer Grain Mix — 10 lbs/cow/day
c. TM Salt — free choice

(4) Post-Weaning Calves
a. Haylage — free choice, fed 2x/day
b. Cow Grain Mix — free choice, max. 10 lbs., fed 2x/day
c. Soybean Meal — 2 lb/day, fed 2x/day

(5) Neonatal Calves
a. Colostrum — as soon as possible and as much as possible
b. Whole Milk — as much as possible, 3x/day for the first 10 days
c. Milk Replacer — 1 lb/day, fed 2x/day
CP% = 20 Fat% = 20
Fiber% = 15
Vit A = 25,000 Vit D = 5,000
d. Calf Starter — Cow Grain Mix + SBM (2 lb)

Cow Grain Mix

Feeds	cost/cwt.	lbs./batch
Rolled corn	3.35	5000
Rolled barley	3.75	1000
TM Salt	0.10	36
Dairy Phos.	.31	60
BiCoMag Buffer	.25	60
Milker Ration	2.75	5
Selenium	.10	2

Heifer Grain Mix

Feeds	cost/cwt.	lbs./batch
Rolled corn	3.35	1000
Rolled barley	3.75	5000
SBM	10.70	200
Super 16 Min.	.25	80
Selenium	.20	10
Zinc Mixer	.51	20
Stock-Aid	1.10	6

Mineral Mix

Feeds	cost/cwt.	lbs./batch
Fre-Flo cal	.07	225
Super 10	.21	200
Selenium	.20	22
Dry Molasses	15.90	10
Molasses	8.25	10

Peak Power Pass : 15.90 cost/cwt
Booster Pak : 79.00 cost/cwt

Data Sheet of Herd Values

Cow No.	Lact.	Body Score	Wt.	Ketones	Blood	Rumen pH
1	112	3	1215			
2	201	−3				
3	201	−3				
4	178	+2				
5	183	+2	1126			
6	118	3				
7	202	−3				
8 (dry)	—	3	1420		+	
9 (dry)	—	4				
10	360	4	1435			
11	192	−3				
12	221	3				
13 (fresh)	3	4	1288		+	
14	298	3		—		
15	311	−4	1452			
16	480	3				
17	300	+3				
18	282	3				
19 (dry)	—	3				
20	143	3	1190	—		
21 (dry)	—	4				
22	271	3	1577	(trace)		
23	144	+2				6.9
24	350	4				
25	100	+3	1272			
26 (late)	280	−3	1370		+	
27 (dry)	—	2		—		
28	114	2		—		
29	158	3				
30	56	+2	1111			
31 (mid)	191	−3	1125		+	
32	52	3				
33 (dry)	--	+4				
34	356	3				
35 (dry)	---	−4	1635			
36	120	−3				
37 (high)	30	3	1260		+	6.4
38 (dry)	--	+3		—		
39	178	+3				
40	232	−3	1600			
41 (mid)	225	4				
42 (dry)	—	3				
43	215					
44 (fresh)	18	3	1110		+	
45		−3				
46	228	−3	1700			
P. B. (Open)						
Breezy (Open)						

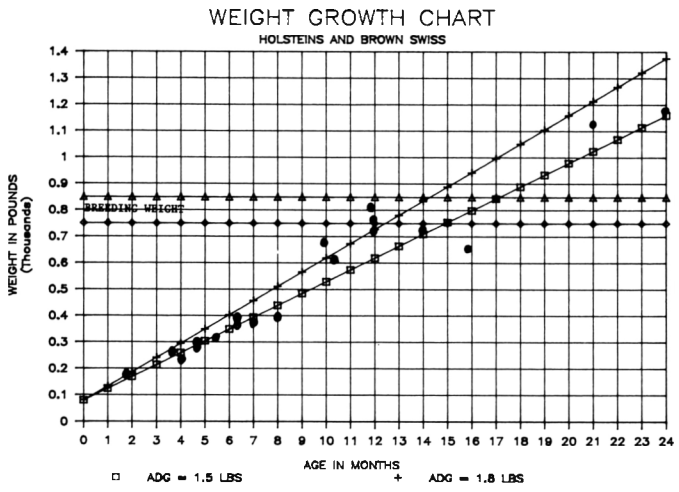
Heifers Data

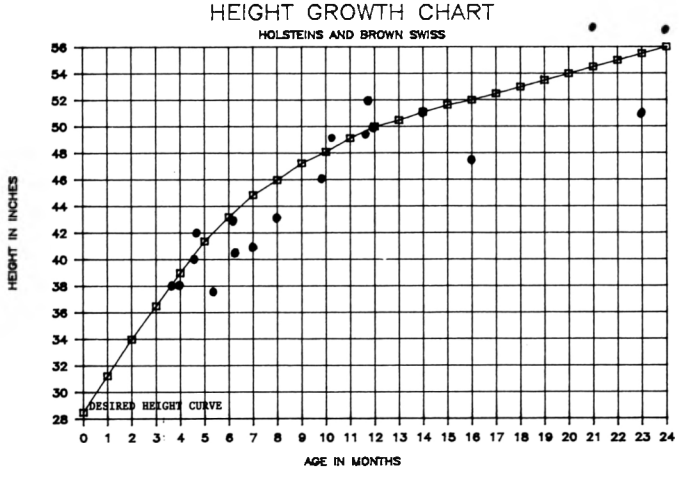
Heifers No.	Age	Body Score	Wt.	Girth	Ht.
Marabou	210	+3	380	47	41
Carnation	240	+3	398	50	43
Sprung dtr	190	+3	390	49.5	40.5
Patty drt	—	+3	320	46	39
Laser	190	+3	373	49	43
Baucis	143	+3	287	44.5	42
Elise dtr	119	3	231	41.5	38
Ulgier	162	+3	302	45	37.5
Dancier	142	+3	295	45	40
Universe	358	+3	769	64	52
Anthem	310	+3	617	59	49
Shaggy dtr	298	+3	673	61	46
Solo	361	+3	732	63	50
Fantasy	112	−3	250	42	38
Candy dtr	52	−3	174	42	38
Lady DI	630	4	1130	74	57.5
C Lass	720	4	1174	75	57.5
Cuddles dtr	690	4	797	66	51
Vicki dtr	420	3	720	62.5	51
Free-Martin	354	3	807	65.5	49.5
Terd Bag	478	3	657	60	47.5

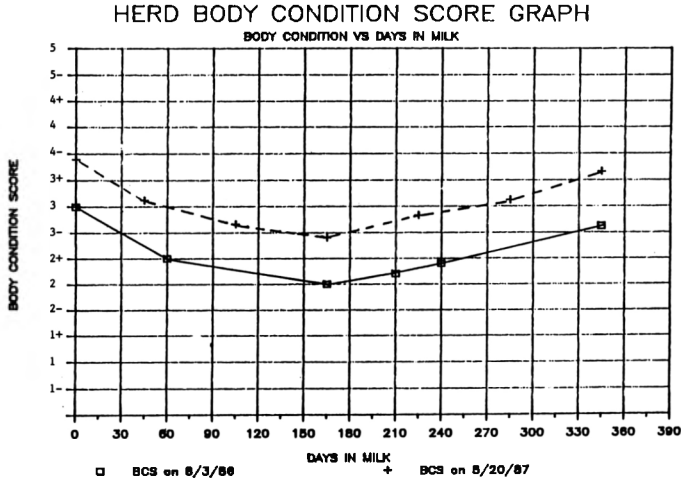
Body Condition Score Days In Milk

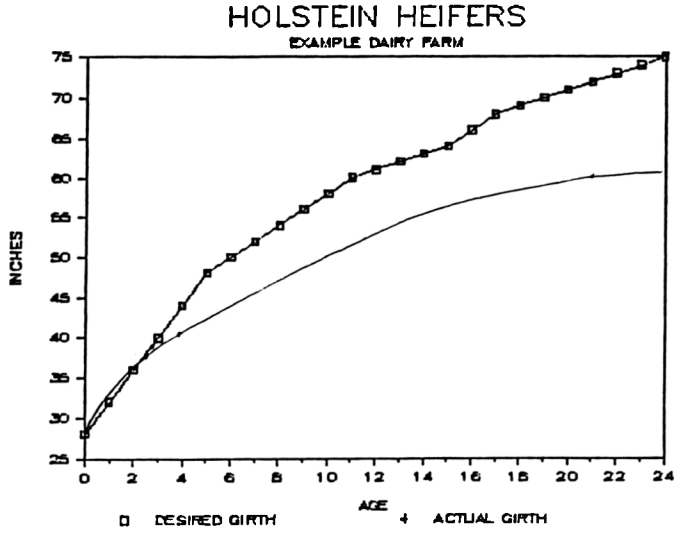
Title: Ken Runhaug Farms
Heifer Growth Chart

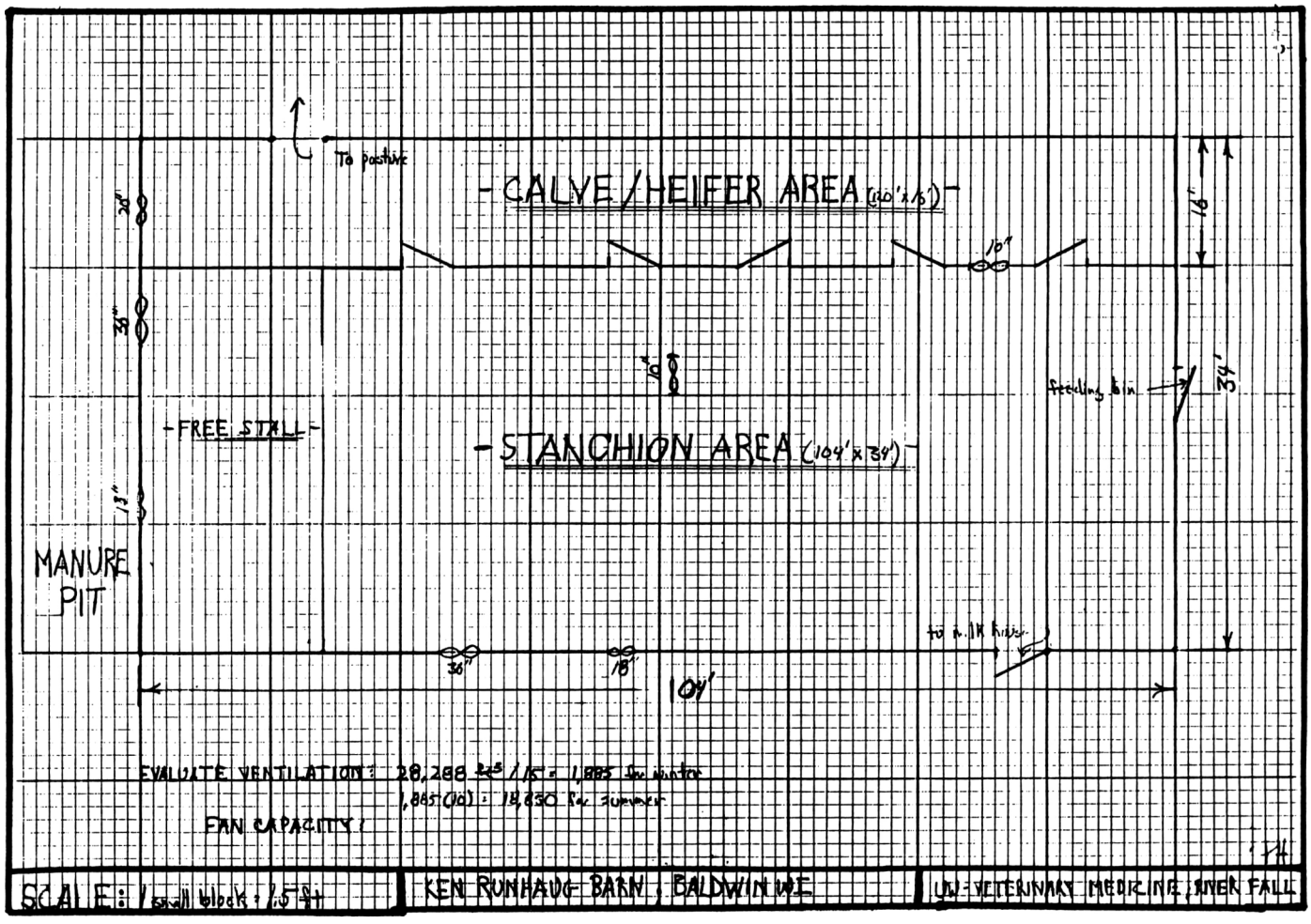
Legend = • individual wt. • = data from 8/3/86
• = individual ht.
—— = wt. curve
— — = ht. curve











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