

# Calf and Heifer Management #2

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## From Weaning to Breeding

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- Heifers should be moved to a group pen
- Start feeding calf grower diet
  - ✓ Calf grower can be fed, *ad libitum*,  
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  - ✓ Feeding silages is not advisable
  - ✓ Provide good quality hay
  - ✓ Do not forget clean and adequate water
  - ✓ -----

## **From Weaning to Breeding**

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- **Maintain adequate growth to ensure breeding at desired age**
- **Ability to control gain during this time is the key to success**
- **Poor feeding programs will result in:**
  - ✓ **Low daily gain**
  - ✓ -----
  - ✓ **Delay in breeding**
  - ✓ **Delay in first calving**
- **Over feeding will result in:**
  - ✓ **Excessive daily gain**
  - ✓ -----

## **Managing Heifer Development**

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### **Goals:**

- **Provide replacements for cows leaving the herd**
  - **Improve genetics and production**
  - **Raise heifers efficiently and economically**
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- I. -----
  - II. **Body size at calving**
  - III. **Controlling Expense – feed and labor**
  - IV. **Ease of care**
  - V. **Optimizing Health**

**Age at calving  
Body size at calving**



- The recommended goal for dairy replacement Holstein heifers:
  - Calving at ----- months of age
  - Post-calving BW of -----



**Why 1250 lb After Calving?**

- Data collected from 1980-1984:
    - Heifers calving between 1195-1250 lb had the highest milk yield in the first lactation
    - Milk yield drastically declined for heifers below 1100 lb.
- 1<sup>st</sup> lactating cows that weighed 1250 lb produced 1775 lb more milk than those weighed 900 lb

----- had a greater impact on milk yield than did -----

Keown & Everett, 1986

## **Breed Based on Age or Weight?**

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**50,000 DHIA records:**

**Question: relationship between age at 1<sup>st</sup> calving, post-calving BW and first lactation milk yield**

### **Findings:**

- 1. Optimum milk yield → post-calving wt. = 1200-1300 lb**
- 2. Weak correlation between milk yield and calving age**
- 3. Reduced milk yield → post-calving wt > 1300**

**1200-1250 post-calving weight supports optimum 1<sup>st</sup> lactation milk yield**



**Over-conditioned heifers do not perform well and have reduced milk yield**

**Remember:**

**1200-1250 lb. Post-calving weight translates to a 1300-1350 lb pre-calving weight**

## Should We Forget about Age?

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Calving age, at when heifers reaches to 1250, is important

Late calving translates to less productive life

Late calving translates to larger expenses

**\$\$ → rearing heifers (birth to calving)= \$1800 - \$2000**

**\$\$ → The earlier the lactation occurs, the sooner the initial investment will be returned**

## Check These Numbers ☹️

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Delayed calving beyond 24 months



↑ rearing costs = -----/mo/heifer

Effect of age at first calving on number of required replacements for a 100-cow herd

Cull Rate (%)	-----Age at first calving-----			
	22	24	26	28
20	40	44	48	51
30	61	66	72	77

Looper & Bethard, 2000; Smith, 1999)

## What about earlier calving age?

Calving before and at 21 months is risky due to problems with rapid growth



- Since BW has a major affect on 1st lactation milk yield, calving @ 21 months may translates to:
  - ✓ ~ 3.0 lb/day gain from birth to calving
  - ✓ Age at breeding must be reduced to 11-12 months
  - ✓ Excessive pre-pubertal weight gain



## What about earlier calving age?

BW gain of > ----- lb/day may be detrimental to mammary growth and development and affects the subsequent lactation performance. Sejrnsen et al., 1982

## Attaining 1250 lb in 24 Months

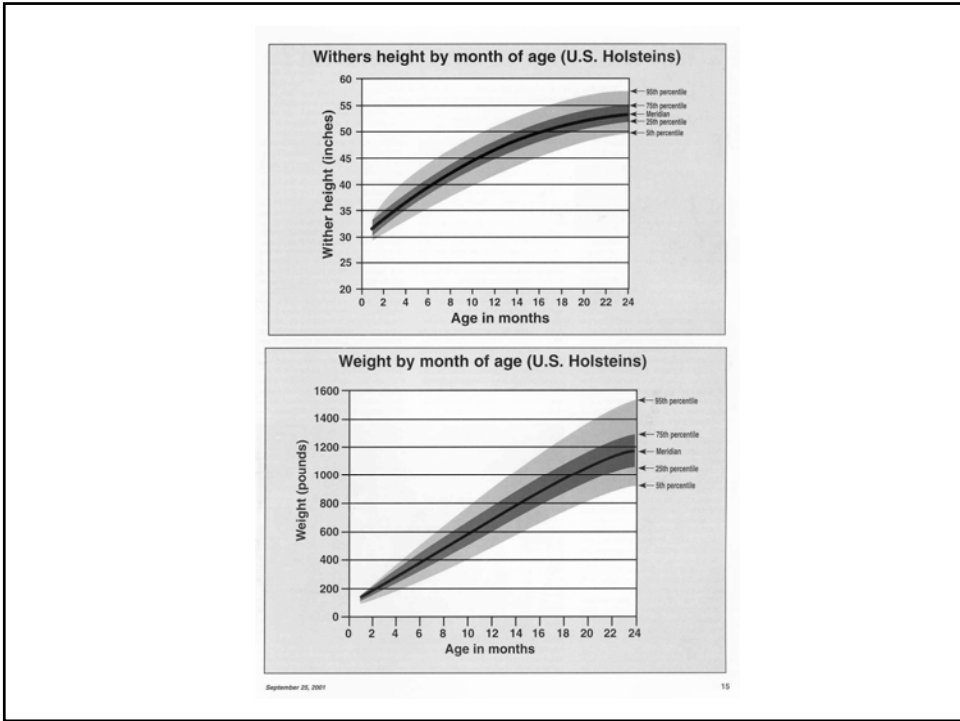
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- ADG of ----- from birth to pre-calving (~1350 lb.)
- Sexual maturity of Holstein heifers begins at ----- (around 9-10 months of age)

## Attaining 1250 lb in 24 Months

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- Maximum lb gain/day = ----- lb
- Achieve ----- lb & 48" height at 14 months of age
- ADG < 1.5 lb is unacceptable and not economical
- ADG > 2.0 lb is unacceptable and detrimental to milk yield



**Recommended ranges of BW and wither height for Holstein heifers**

Age (mo.)	Body weight (lbs.)	Wither height (inches)
1	130-135	31.7-33.2
3	226-244	35.2-37.1
5	323-354	38.4-40.4
7	420-463	41.1-43.3
8	469-518	42.3-44.5
9	518-572	43.4-44.5
11	615-682	45.4-47.6
13	712-791	47.1-49.3
14	761-864	47.8-50.0
16	858-956	49.0-51.2
18	956-1065	50.2-52.1
20	1053-1174	51.0-53.0
22	1150-1284	51.7-55.0
24	1247-1393	52.2-56.5

Adapted from Loooper and Bethard  
The progressive Dairyman

## Accelerated Heifer growth

- Feeding Higher amounts of properly formulated (30% CP) milk replacers
- Time: during the first four to six weeks of life; 2 lb of dry milk replacer
- ADG 2.0-2.2 lbs/Day

### Goals for Heifer Management

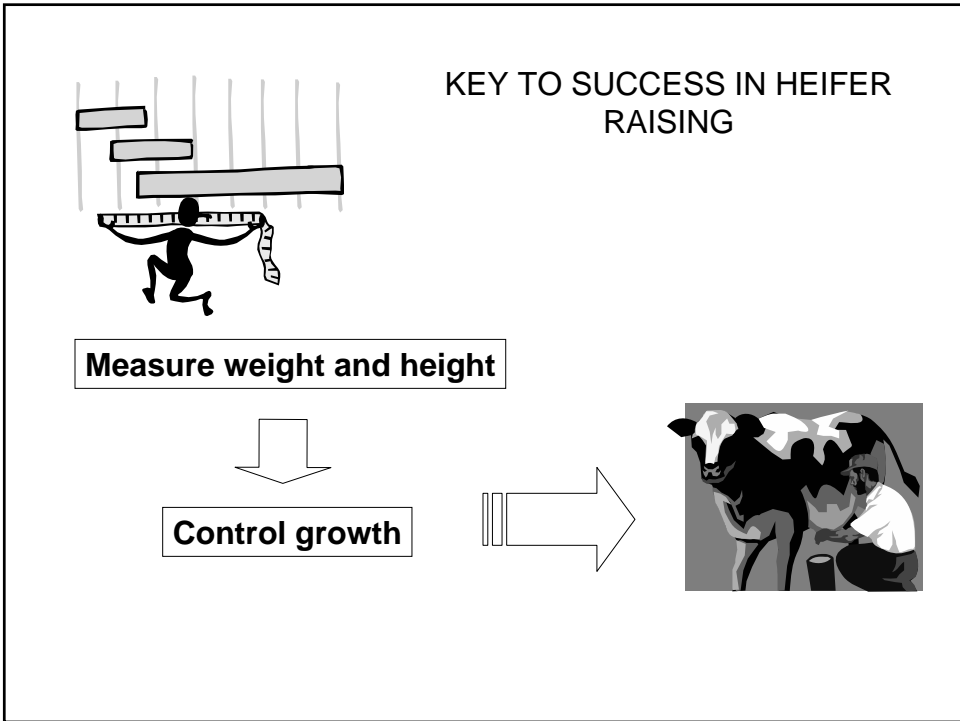
Parameter	Brown Swiss & Holstein	Ayrshire & Guernsey	Jersey
Mortality (%)	<5	<5	<5
Weaning age (weeks)	4-6	4-6	4-6
Average daily gain (lbs./day)	1.6-1.8	1.4-1.6	1.2-1.4
Maximum prepubertal ADG (lbs./day)	1.8	1.6	1.4
Average age at first breeding (months)	14	14	12
Weight at first breeding (lbs.)	800	650	550
Wither height at first breeding (inches)	50	46	43
Services per conception	1.5 - 1.8	1.5 - 1.8	1.5 - 1.8
Age at first calving (months)	24 - 26	24 - 26	22 - 24
Postcalving weight (lbs.)	1250	1000	800
Peak milk production (lbs./day)	70	60	55

Adapted: D. R. Winston, Virginia Tech

**GROWTH STAGES**

Age	Weight (Lbs.)	Average Daily Gain (Lbs.)	Percent Death Loss	Percent Culled
Birth to 3 Days	90 to 100		2 to 5	
Liquid Feeding	160 to 180	1.2 to 1.4	2 to 10	
Weaning to 7 Mo.	450	1.7 to 2.2	1 to 2	4 to 5
7 Mo. to Breeding	880	1.7 to 2.2	<1	1
Breeding to Calving	1366	1.5 to 2.2	<1	1 to 2

*A very good program has 90 percent of the heifers born alive enter the barn as springers.*



## Breeding Age Heifers

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- **Breeding age (13-14 months)**
  - **Body condition score**
  - **Wither height measurement**
  - **Balanced ration: ~----- lb DM**

<b>CP: ----- %DM</b>	<b>TDN: ----- DM</b>
<b>ADF: 32% DM</b>	<b>RUP: 20% of CP</b>

- **Make sure that heifers do not loose BW and body condition at this stage.**

## Breeding and estrous Synchronization

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- **Start breeding at 13 months of age**
  - **This provides 3 insemination opportunities by 15 months of age**
- **Implement a strong visual observation schedule for detecting heat**
- **Implement a systematic breeding program (DO NOT USE OvSynch !!)**
- **Keep a good record of pregnancy and conception rates**
  - **Acceptable CR = 65%**      **CR goal = >80%**

