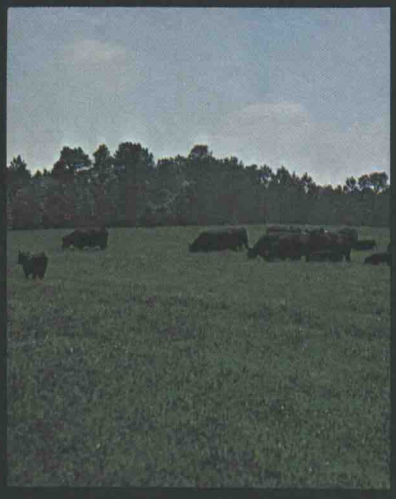
# Total Cattle Management



## *A Management Calendar for Spring Calving*

OREGON STATE UNIVERSITY
EXTENSION SERVICE

EM8322

# MANAGEMENT CALENDAR FOR SPRING CALVING

**Department of Animal Science, Oregon State University**

This management calendar is a suggested guideline for the cow-calf producer practicing spring calving. The time of application of the procedures may vary depending upon herd location and upon each operator's management preferences. Producers are encouraged to use the management procedures and guidelines that fit their operations.

## NUTRITION

When structuring a cow-calf feeding program, look critically at cow size, milk production, condition of cow, age, gestation period, weather and growing conditions (including soil and plant nutrient levels), then optimize available feed sources.

## HEALTH

For total herd health management, consider prevention, control, and treatment. A sustained program of vaccinations and parasite control in addition to careful observation and prompt, accurate diagnosis is essential to success. A working relationship with a veterinarian should be established to assess the herd's reproductive performance, recommend a vaccination program tailored to the herd's specific needs and assist in the diagnosis and control of potential herd problems.

## REPRODUCTION

Reproduction is vital to the profitability of the cattle industry. The most important goal is to produce one live calf per cow per year. To achieve this, a sound breeding and selection program is essential.

Period One - Calving to Breeding (Approximately 82 days)

### General Nutritional Considerations

The following statements apply throughout the four periods:

- Salt should be provided at all times.
- Mineral supplementation should be provided based on specific area needs. Consult your veterinarian or extension agent for recommendations.
- Calcium: Phosphorus ratio should be approximately 2:1.
- If possible, divide herd into groups with the same nutritional needs.
- Liquid or concentrate supplements may be provided to meet animals' nutrient requirements. Supplement with 1/2 - 3/4 lbs. crude protein. NPN is not recommended with a low quality high roughage diet.
- Total daily intake of dry matter should equal 2-3% of the animal's body weight.
- Adjust suggested rations to meet daily requirements listed in Table II.

### Cow Management Procedures At Birth

- Calve heifers separately from cows for closer observation.
- Provide adequate shelter.
- Keep calving area as clean as possible.
- Record treatments given.
- Collect colostrum and freeze for future use.
- Move cows with calves from calving area as soon as possible.

### Calf Management Procedures At Birth

- Apply strong iodine solution to navel at birth.
- Provide colostrum for calves that do not nurse within 2 hours. (Two quarts at two hours and two again 8 to 10 hours later.)
- Identify calves (eartags and/or tattoos).
- Record sex, birthweight, date, dam and sire.
- Dehorn (if using caustic paste).
- Frequently check calves for scours and pneumonia.
- Inject with selenium and vitamin E if needed.

### Preparation For Breeding

- Vaccinations: (Close to, but not before, 30 days prior to breeding.)
  - Bulls: BVD (killed virus)
    IBR-$PI_3$
    Leptospirosis
    Clostridial bacterins
  - Cows: Vibriosis
    Leptospirosis
    Clostridial bacterins
    BVD (killed virus)
    IBR-$PI_3$
- These are minimum recommendations. Consult with a veterinarian for diseases which should be vaccinated against in addition to those listed.
- Control internal and external parasites.

### Check for Dystocia

- Signs of calving difficulties:
  - Only the tail or head is visible.
  - Front feet protrude past the knees, but nose cannot be located.
  - The head and one foot are visible.
  - More than two feet are visible.
- First-calf heifers may require assistance more often than cows, watch them closely.
- If the decision to pull a calf is made, it is important to be sanitary.

### Preparation For Breeding

#### BULLS

- All bulls should be on the premises 60 days prior to the breeding season to adapt to the environment.
- Fertility check bulls.
- If using A.I., have ample semen on hand.
- Determine number of bulls needed:
  - Yearling bull — 10-20 cows
  - 2 year-old bull — 20-30 cows
  - Mature bull — 30-40 cows
- Mature bulls may out-compete younger bulls during breeding; therefore, cow per bull ratios vary considerably when using more than one sire.

#### COWS

- Cows should be maintained on a high plane of nutrition.

Period Two - Breeding, Pregnancy and Lactation (Approximately 123 days)

## NUTRITION

- The following rations will meet the nutrient requirements of the breeding herd when not on pasture.

**Table I - Suggested Rations[a]**

Cows and Heifers - Period 1 and 2 - (Cows nursing calves)

| Animal | Hay | Amt. Fed lbs as fed | Amt. Fed lbs DM | Protein lb | TDN lbs |
|---|---|---|---|---|---|
| 1100 lb cow 10 lbs milk | Alfalfa[b] | 14 | 12 | 2.0 | 12.1 |
| | Grass | 27 | 25 | 2.25 | 12.5 |
| | Grain hay | 26 | 23 | 2.0 | 12.6 |
| 900 lb heifer .5 lb/day gain | Alfalfa | 23 | 21 | 3.5 | 12.1 |
| | Grass | 27 | 25 | 2.25 | 12.5 |
| | Grain hay | 26 | 23 | 2.0 | 12.6 |
| 1800 lb bull .5 lb/day gain | Alfalfa[c] | 18 | 16 | 2.8 | 16.1 |
| | Grass | 35 | 32 | 2.9 | 16.1 |
| | Grain hay[d] | 25 | 23 | 2.4 | 16.1 |

[a]Adapted from NRC, 1984, Nutrient Requirements of Beef Cattle. Figures are based on average quality hay. Adjust feeding levels for inferior quality hays and the use of energy and/or protein supplementation. Increase feed approximately 4-10% to allow for waste.

[b]Supplement alfalfa with 12 lbs. of straw.

[c]Supplement alfalfa with 16.5 lbs. of straw.

[d]Supplement grain hay with 9 lbs. of straw.

**Table II - Nutrient Requirement for Cows, Heifers, and Bulls***

Period 1 and 2
(Cows nursing calves, average milking ability.)

| | WT. | Gain | DM | TDN | Prot. | ME | Ca | P | Vit. A |
|---|---|---|---|---|---|---|---|---|---|
| | lbs. | | lbs./day | | | Mcal | grams | | IU/day |
| Cows | 1,100 | 0 | 21.6 | 12.1 | 2.1 | 19.9 | 27 | 22 | 38,000 |
| Heifers | 950 | 0.5 | 20.0 | 12.5 | 2.0 | 20.5 | 28 | 21 | 35,000 |
| Bulls | 1,800 | 0 | 28.9 | 14.0 | 2.0 | 23.0 | 27 | 27 | 51,000 |

[a]Adapted from NRC, 1984, Nutrient Requirements of Beef Cattle.

- Consider creep feeding if economically advantageous. Use the most economical combination of oats, corn or barley or the following 15% CP creep ration (free choice):

| | |
|---|---|
| Oats | 55% |
| Corn | 27% |
| Soybean meal | 16% |
| Molasses | 2% |

- Feed bulls to regain body condition **after** breeding season. Refer to Table I.

### Forage Utilization

- To optimize beef production, and avoid degradation of available forage resources, utilize rotation grazing systems.
- Use forage resources in such a manner as to maximize nutrient intake **throughout** the grazing season.
- If grass tetany is a problem, supplement with magnesium.
- When grazing legume pastures, watch for bloat. Poloxalene (Bloat Guard) mineral blocks or mixes can help prevent bloat.
- Avoid suddenly changing cattle from overmature forage to lush regrowth as acute bovine pulmonary emphysema may result.
- Be aware of poisonous plants. Such plants cause abortions, birth defects, and/or death.

## HEALTH

### Calf Management Procedures

- Consult a veterinarian for the time of initial vaccination and specific recommendations for your area.
- At all times, follow the label directions on any product used.
- Vaccinations:
  Clostridial bacterins
  Leptospirosis
  IBR-$PI_3$
- Castrate
- Dehorn
- Brand
- Implant (except those animals to be kept for breeding purposes).

### Parasite Control

- Use appropriate measures for fly control.

### Cow Management

- Pregnancy test
- Check: udder
  feet
  mouth
  eyes
  eartags (clip hair to make readable)

### Pre-Weaning Calf Management

- Vaccinations for all calves: (At least 30 days prior to weaning.)
  Clostridial bacterins
  Leptospirosis
  IBR-$PI_3$ (Plus other vaccines against pneumonia as recommended by your veterinarian.)
- For heifers and bull calves kept for breeding:
  BVD (killed virus)
  Vibriosis (Optional)
- Heifers only:
  Bangs (State regulations vary; consult with your veterinarian.)
- Control internal and external parasites.
- Implant non-replacement heifers and steers.
- Prepare weaning areas.
- Introduce calves to bunk feeding.

## REPRODUCTION

### Breeding Season

- Aim for a 45-60 day breeding season with the cow herd or for the shortest breeding season possible that fits with your land and financial resources.
- Breed to improve weak characteristics of your herd.
- Begin breeding heifers 15-25 days before the cows - or - integrate heifers with the whole cow herd for only the first 30 days.

### If Using Artificial Insemination

- Check herd early morning and evening for signs of heat (estrus).
- Check cows returning to estrus after being inseminated.
- If using estrus synchronization products, follow manufacturer's instructions.
- Heat detection devices are available for use when economically feasible.
- For first-calf heifers one may use a bull known to sire smaller calves as this may help to reduce calving difficulties.
- Use a clean-up bull if using A.I. Note date when clean-up bull is introduced to herd.

### Signs of Estrus

- Standing voluntarily while being ridden (primary sign)
- Clear mucus discharge from vulva
- Mounting other cows
- Reddish swollen vulva
- Restlessness, bawling
- Ruffled hair on rump

### Pregnancy Examination

- Test cows 45-60 days after the breeding season.

Period Three - Mid-gestation (Approximately 110 days)

## NUTRITION

### Table III - Suggested Rations*

Middle Third of Pregnancy

| Animal | Hay | Amt. Fed lbs as fed | Amt. Fed lbs DM | Protein lb | TDN lbs |
|---|---|---|---|---|---|
| 1100 lb cow | Alfalfa[b] | 6 | 5 | 1.4 | 9.5 |
| | Grass[c] | 14 | 13 | 1.4 | 9.5 |
| | Grain hay[d] | 15 | 13 | 1.4 | 9.5 |
| 700 lb heifer[a] 1.5 lb/day gain | Alfalfa | 21 | 19 | 3.2 | 11.0 |
| | Grass | 23 | 21 | 1.9 | 10.6 |
| | Grain hay | 22 | 20 | 1.8 | 11.0 |
| 1800 lb bull maintenance | Alfalfa[e] | 9 | 8 | 2.2 | 14.0 |
| | Grass[f] | 20 | 18 | 2.1 | 14.0 |
| | Grain hay[g] | 20 | 18 | 2.1 | 14.8 |

*Adapted from NRC, 1984, Nutrient Requirements of Beef Cattle.
[a]May want to consider feeding concentrate.
[b]Supplement alfalfa with 16 lbs. of straw.
[c]Supplement grass hay with 7 lbs. of straw.
[d]Supplement grain hay with 7 lbs. of straw.
[e]Supplement alfalfa with 23 lbs. of straw.
[f]Supplement grass hay with 12 lbs. of straw.
[g]Supplement grain hay with 12 lbs. of straw.

### Table IV - Nutrient Requirement for Cows, and Heifers*

Period 3
(Middle third gestation.)

| | WT. | Gain | DM | TDN | Prot. | ME | Ca | P | Vit. A |
|---|---|---|---|---|---|---|---|---|---|
| | lbs. | | lbs./day | | | Mcal | grams | | IU/day |
| Cows | 1,100 | 0 | 19.5 | 9.5 | 1.4 | 15.6 | 17 | 17 | 25,000 |
| Heifers | 750 | 1.4 | 16.6 | 10.0 | 1.5 | 16.4 | 24 | 16 | 21,000 |

*Reference: NRC 1984, Nutrient Requirements of Beef Cattle.

- Manage feeding programs and pasture systems for backgrounding weaner calves to gain 1.5-2.0 lbs/day.
- Plan winter stockpiling of forages at a rate of .4 to .5 ton/cow/month.
- Replacement heifers should gain 1.0-1.5 lbs daily, depending on frame size and breed. Feed to grow rather than fatten.

### Water Requirements

| | Environmental Temperature | |
|---|---|---|
| | 40°F | 70°F |
| Lactating cows | 11.4 gal/day | 16.7 gal/day |
| Mature bulls | 8.7 gal/day | 12.6 gal/day |

## HEALTH

### Weaning

- Wean when economically advantageous
- Record weight
- Minimize handling to reduce stress
- Check for sickness in calves especially in the first 15 days.

### Helpful Hints At Weaning

- Remove cows from calves.
- Separate cows and calves so they cannot hear each other.
- If space is available, separate steer and heifer calves.

### Formula for calculating 205-Day Adjusted Weaning Weight:

$$\frac{\text{Actual weaning weight} - \text{Birth weight}}{\text{Age in days when weaned}} \times 205 + \text{Birth weight} + \text{Age of dam factor}$$

### Age of Dam Factor:

| Cows Age | Males | Females |
|---|---|---|
| 2 | +60 | +54 |
| 3 | +40 | +36 |
| 4 | +20 | +18 |
| 5-10 | 0 | 0 |
| 11 | +20 | +18 |

### Normal Vital Signs

| | |
|---|---|
| Temperature | 100.4 - 103.1°F |
| Pulse rate | 40 - 70/minute |
| Respiration rate | 10 - 30/minute |

### Parasite Control

- Control internal and external parasites.
- Prior to the administration of medication, determine the time in the parasite's life cycle for most effective treatment results.
- Use appropriate measures for fly control.

## REPRODUCTION

### Herd Evaluation

- Reasons to cull cows:
  open (non-pregnant)
  unsound
  poor disposition
  fat (poor mothers)
  poor reproductive performance
- Consider herd goals. Go over breeding records for the next season. Information in your records may include: calving difficulties, breeding date, calving date, sex of calf, calf birth weight, and calf weaning weight.

### Selection of Replacement Heifers

- Select heifers on the basis of:
  dam's record
  conformation
  weaning weight
  temperament
- Do not select freemartins.
- Select 50-60% more than actually needed to allow for culling.
- Remember: weight, heredity, breed and age affect puberty. Smaller breeds of cattle reach puberty at a younger age.

### Selection of Sires

- Consider the following criteria in the selection of sires:
  conformation and structural soundness
  birth, weaning, and yearling weights
  temperament
  body condition - not overfat
  genetic potential
  semen quality
  sire and dam records
  sibling and progeny records (if available)

Period Four - Pre-Calving (Approximately 50 days)

## NUTRITION

**Table V - Suggested Rations***

Last Third of Pregnancy

| Animal | Hay | Amt. Fed lbs as fed | Amt. Fed lbs DM | Protein lb | TDN lbs |
|---|---|---|---|---|---|
| 1100 lb cow .9 lb/day gain | Alfalfa[b] | 16 | 14 | 2.67 | 11.27 |
| | Grass hay | 25 | 23 | 2.07 | 11.5 |
| | Grain hay | 23 | 21 | 1.89 | 11.55 |
| 750 lb heifer 1.4 lb/day gain | Alfalfa | 20 | 18 | 3.06 | 10.44 |
| | Grass hay | 22 | 20 | 1.8 | 10.0 |
| | Grain hay | 21 | 19 | 1.71 | 10.45 |

*Adapted from NRC, 1984. Nutrient Requirements of Beef Cattle
[a]May want to consider feeding a concentrate.
[b]Supplement alfalfa with 8 lbs. of straw.

- Maintain bulls on the ration given in Table III.

## HEALTH

**Cow Management**

- Vaccinations: (administer approximately 30 days prior to calving to maximize antibody protection to the calf through colostrum.)
  - Rota-Corona
  - E. Coli scours vaccines
- Supplement with:
  - Vitamin A - if needed
  - Selenium - if needed
- Control internal and external parasites.
- Evaluate cow health and physical condition.

## REPRODUCTION

- Time of feeding has been shown to be correlated with time of calving. Consider beginning late afternoon/early evening feeding approximately 1 month prior to calving to increase the percentage of daytime births.
- Start cows on increased nutritional plane.

**Prepare Calving Area**

- If possible, rotate calving area yearly.
- Prepare separate area to care for sick calves.
- Suggested items to have on hand include:
  - sulfa boluses
  - drench bag
  - electrolytes
  - antibiotics
  - frozen colostrum (thaw slowly)
  - iodine for navels
  - calf pulling equipment
  - disinfectants
  - lubricants

# GENERAL INFORMATION

**Suggested Production Goals**

1. Strive for a 90-95% calf crop. Percentage calf crop is based upon the number of cows exposed to a bull during breeding season compared to the number of calves weaned.
2. Increase weaning weights by 20% in the next 5 years if it will increase margin of profit.
3. Select to improve weak points of the herd.
4. Have 60% of the herd calve in first 21 days, 80% calve within 45 days, and 100% calve within 60 days.

**Helpful Hints**

- Have a sharp pencil! As a manager, "pencil out" all feasible options. Use all information and professional help that is available.
- Scouring calves should be given an oral electrolyte solution (2 quarts) in combination with a suitable antibiotic, at least twice daily. After two or three days of treatment, or as soon as scouring ceases, discontinue the antibiotic and introduce acidophilus milk. More intensive treatment may be required for more seriously affected calves.

**Electrolyte Formula:**

| | |
|---|---|
| Sodium Chloride (table salt) | 1 tablespoon |
| Sodium Bicarbonate (baking soda) | 1 tablespoon |
| Glucose or corn syrup **not** table sugar | 5 ounces |
| Sodium Free Salt (Lite Salt-Potassium Chloride) | 1 teaspoon |
| Water | Fill to make a gallon |

- Also administer 2-4 oz. of Pepto Bismol 3 times a day (orally).

# GLOSSARY

**As Fed** - Composition of feed on an air-dry basis method compared to feed on a Dry Matter basis (oven dried).

**Backgrounding** - A feeding program for weaner calves that may utilize grain as well as forage to increase weight gains and prepare animals for the feedlot.

**Bangs Disease (Brucellosis)** - A contagious disease caused by bacteria and characterized by abortion in the female, infection of sex glands in male and infertility in both sexes.

**BVD (Bovine Virus Diarrhea)** - Mucosal disease complex caused by a virus and characterized by diarrhea and dehydration. Do not vaccinate pregnant cows because of possible abortions and birth defects.

**Clean-up Bull** - A bull used to breed any cows that did not conceive when artifically inseminated.

**Clostridia** - A genus of bacteria responsible for a variety of cattle diseases such as: black leg, malignant edema, and overeating disease.

**Colostrum** - First milk produced by the cow after giving birth. High in energy, antibodies and minerals. Most effective in calves if given within 2 hours of birth.

**Concentrates** - Feedstuffs containing a high proportion of energy or protein.

**DM (Dry Matter)** - That part of a feedstuff which contains no weight due to water.

**Drench** - Oral administration of a liquid.

**Dystocia** - Term used to indicate calving difficulties.

**Electrolytes** - A solution to treat dehydrated animals to replace lost minerals.

**Estrus synchronization** - Use of drugs to bring the estrous cycle of all cows to the same stage.

**F/G** - The pounds of feed required per pound of gain.

**Freemartin** - A sterile female calf born as the twin to a bull calf.

**Gestation** - The period during which the animal is pregnant.

**IBR (Infectious Bovine Rhinotracheitis)** - An acute contagious viral infection characterized by inflammation of the upper respiratory tract. It can cause abortion at any time during gestation.

**Lepto (Leptospirosis)** - An abortion disease with additional symptoms of high fever, poor appetite, and bloody urine.

**ME (Metabolizable energy)** - Represents the amount of energy in feedstuffs available for maintenance and growth. ME is usually considered to be a more accurate measure of available energy than TDN.

**NPN (Non-Protein Nitrogen)** - Dietary nitrogen supplied in inorganic form such as urea or ammonia.

**Parturition** - The process of giving birth.

**$PI_3$ - (Parainfluenza III)** - Viral pneumonia which usually affects cattle from 1-8 months of age.

**TDN (Total Digestible Nutrients)** - A measure of total energy content of a feedstuff.

**Trich (Trichomoniasis)** - A contagious venereal, protozoan disease characterized by sterility, uterine infection, and abortion.

**Vibriosis (Campylobacter)** - Abortion disease in the middle one-third of gestation.

# *IMPLANTING:*

## *"That Slight Edge" in Total Cattle Management*

Implanting is a fast, easy procedure that can be that slight edge in total cattle management. Thousands of tests have shown the benefit implanting can have on rate of gain and feed efficiency in suckling beef calves, grazing and wintering yearlings and finishing steers and heifers. Implanting can produce that extra gain that can mean the difference in beef cattle profitability. However, it will not replace other good management practices. Implanting is easy, but it must be done properly.

Here are a few basic points:

1) Use a sharp needle.
2) Select the proper implant site.
3) The implant site is subcutaneous, between the skin and cartilage on the back side of the ear and below the midline of the ear. The implant must be placed in the middle one-third of the ear, no closer to the head than the edge of the auricular cartilage ring farthest from the head. The location for insertion of the needle is a point toward the tip of the ear and at least a needle length away from the intended deposition site.
4) Back the needle off slightly before pulling the trigger.
5) Keep the trigger depressed as you remove the needle from the ear.
6) Implanting near the tip of the ear, in the cartilage or in the blood vessels will alter absorption and reduce potential gains.

*Implanting - basic to total cattle management.*

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