Beef Across Kansas: Nutrition 101

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Overview

- Fundamental nutrient requirements of beef cattle

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- The basics of feed tags and nutrient analyses

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- General guidelines for diet formulation

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- Managing weight gain
- Feed storage and delivery

Nutrient Requirements

1. Water
2. Protein
3. Carbohydrates
4. Fats
5. Minerals
6. Vitamins

- Net Weight
- Product Name
- Purpose
- Guaranteed Analysis
- Ingredient List
- Directions For Use
- Precautionary Statements
- Name and Address of Manufacturer

Net Weight 50 lbs (22.68 kg)

4-H Grower

Medicated

Purpose: 4-H Grower is a complete, balanced diet for optimum growth and development of show cattle during the growing period.

Active Ingredient: Monensin.....30g/ton

GUARATEED ANALYSIS

Crude Protein (min).....14.50%
Crude Fat (min).....3.00%
Crude Fiber (max).....16.00%
Calcium (min).....0.75%
Calcium (max).....0.90%
Phosphorous (max).....0.45%
Salt (min).....0.35%
Vitamin A (min).....3,000 IU/lb
Potassium (min).....0.70%
Selenium (min).....0.30 ppm

INGREDIENTS

Cottonseed hulls, corn by-products, corn, beet pulp, molassess, fat products, manganous oxide, zinc sulfate, cobalt carbonate, vitamin A supplement

DIRECTIONS FOR USE

Feed as a sole ration to growing cattle. This feed is designed for cattle under 800 lbs, but may be fed to cattle of any age or weight with proper management. Cattle should eat approximately 2.5-3.5% of body weight and should be fed 2 pounds of hay per head per day.

CAUTION

Do not use in calves to be processed for veal. Do not allow horses or other equines access.

Manufactured by
Fake Exercise Mill
Anywhere, US, 00000

Crude Protein

- Protein is commonly expressed as crude protein (%)
  - Measured by multiplying the nitrogen value by 6.25
- Supports muscle growth, intake, and performance
- Rumen degradable protein (RDP)
- Rumen undegradable protein (RUP)
- Microbial Crude Protein (MCP)
- Non-protein Nitrogen (NPN)

Crude Protein

- Protein requirement depends on:
  - Weight and size
  - Stage of production
  - Level of expected performance….to a point

- “General” guidelines for growing and finishing cattle
  - 400 to 600 lbs (16 to 18% CP)
  - 600 to 900 lbs (14 to 16% CP)
  - 900+ lbs (12.5 to 14% CP)
  - These are on a dry matter basis (without water)!!!

- These guidelines are generic and should be adjusted as necessary to fit your end goal

Crude Fiber

- Crude fiber is a traditional measure of fiber content in feeds
  - ADF & NDF
- Used to estimate energy content
- Closely related to “roughage” content
- “General” guidelines for crude fiber
  - Starter/grower rations = 15 to 25% CF (30 to 45% roughage)
  - Finishing rations = 6 to 8% CF (10 to 15% roughage)

Crude Fat

- Highly related to energy content of feed
- Energy content is reported as TDN, NEm, and NEg
- Generally added to provide 2-3% supplemental fat
  - Oilseeds: canola, Soybean, sunflower, cottonseed, corn
  - Animal sources: Choice white grease and tallow
  - Food industry: Yellow grease

Crude Fat

- “General” guidelines for dietary fat levels
  - Starter/grower rations = 1-3% crude fat
  - Finisher rations = 4.5-5.5% crude fat

- Can negatively impact performance if levels increase beyond 7%
  - Toxic to rumen microbes

Minerals

- Two classes of minerals: Macro and Micro
- Important to consider:
  - Prevent deficiencies
  - Supports development and growth
  - Supports the immune system
- Macrominerals
  - Expressed as a % of the diet
  - Ca, P, Mg, S, Na, Cl, K
- Microminerals
  - Expressed in parts per million (ppm)
  - Ex: Co, Cu, I, Mn, Se, Zn

Vitamins

- Important for growth, reproduction, body development, etc..
- Expressed as IU/lb
- Vitamin A and E should receive the most attention
- Vitamin D should be considered when sunlight exposure is minimal
- Most commercial feeds are adequate in vitamin and mineral concentrations
- “General” guidelines for vitamin concentrations
  - Vit A: 2,000 to 5,000 IU/lb
  - Vit E: 5 to 10 IU/lb
  - Vit D: 200 to 350 IU/lb bw

Common Additives

- Beta-agonist
  - What is this?
  - Active ingredients
  - Common label instructions
  - Follow the label!!
- Direct-fed microbials
  - Fed to support immune function and growth
  - Commonly incorporated as probiotic bacteria and yeast

Transitioning Diets

- Why is the transition period important?

- Digestive issues
  - Bloat
  - Acidosis

Transitioning Diets:

- Starting cattle on starter or grower diets:
  - Fill calves on hay before their first day of consuming feed
  - Slowly introduce feed over time

- Transitioning to finisher diets:
  - Review label directions before feeding
  - Usually fed alone without hay
  - Multiple ways to “transition slowly”
    - If feeding 2x/day, give 50% grower in the morning and 50% in the afternoon
      - Feed at 50/50 for a minimum of 5-7 days
    - If feeding 1x/day, mix 50/50 for a min of 5-7 days
  - Increases in the feed amount should be gradual (1 lb or less) during the transition
  - Never increase feed call the first day cattle are on 100% finisher
  - Pay attention to cattle behavior and the stool
    - Don’t let cattle become too hungry

Managing Weight Gain

- Have access to a scale
- Need to know:
  - Target weight for the show
  - Days until show begins
- Then you can calculate required average daily gain (ADG)
- Example calculation:
  - Current weight = 900 lbs; target weight = 1250 lb; Show date = 100 days away
  - Required ADG = (1250-900) / 100 = 3.5 lbs ADG needed to meet show weight
- Gain will change based on the ration.. measure and adjust feed routinely!

Feed Storage

- Spoiled feed = bad taste = low intake = low performance

- Maintain feed quality by:
  - Storing feed away from sunlight
  - Clean leftover feed from the trough
  - Don’t buy enough feed to cover you for months
  - Look at the expiration date

Feed Delivery

- Do I feed once or twice per day?
  - Either can work, but twice/day is preferred
- Can I use a self-feeder?
  - Is possible but not recommended
    - Dangerous during transitions
    - Difficult to keep track of intake
- Make sure there is enough room for all animals to eat!

Additional Thoughts

- Understand that weather and pen conditions can influence weight gain
  - Cold temperatures = increase in feed
  - Muddy pens = decrease in performance
- Follow feed tag directions
  - Especially with medicated feeds
- Everyone’s situation/environment is different, so be flexible to change

Feel free to reach out with questions!

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Feeding a Show Steer

Ty Davis, Ph.D.

Major things to take home

- Offer HIGH quality free choice hay at all times
- Make sure your feed has a mineral package included. If not either mix the recommended feeding rate of mineral in the feed or offer free choice
- Weigh your cattle often. Weekly is preferred
- Measure how much feed you are providing in pounds NOT scoops or buckets
- Make realistic goals for your steer and what weights you want them to reach by certain dates

Phases of raising a show steer

Weaning

750 - 900 lbs.

Finishing

Feeding a weaned steer

- Weaned cattle are dealing with a lot of stress
- Don’t push them too hard at this stage
- Take your time and be patient

Feed at ~3% of BW for 3 weeks until you switch to a grower diet

Growing and developing a steer

- This is where you can start looking into supplements
- Do not push your steer too hard or they will fall apart on you
- Trust the process

Finishing a steer

- This is where you can start really pushing your steer
- Depending on your goal weight and your timeline, don’t be afraid to pour the feed and supplements

Holding ration

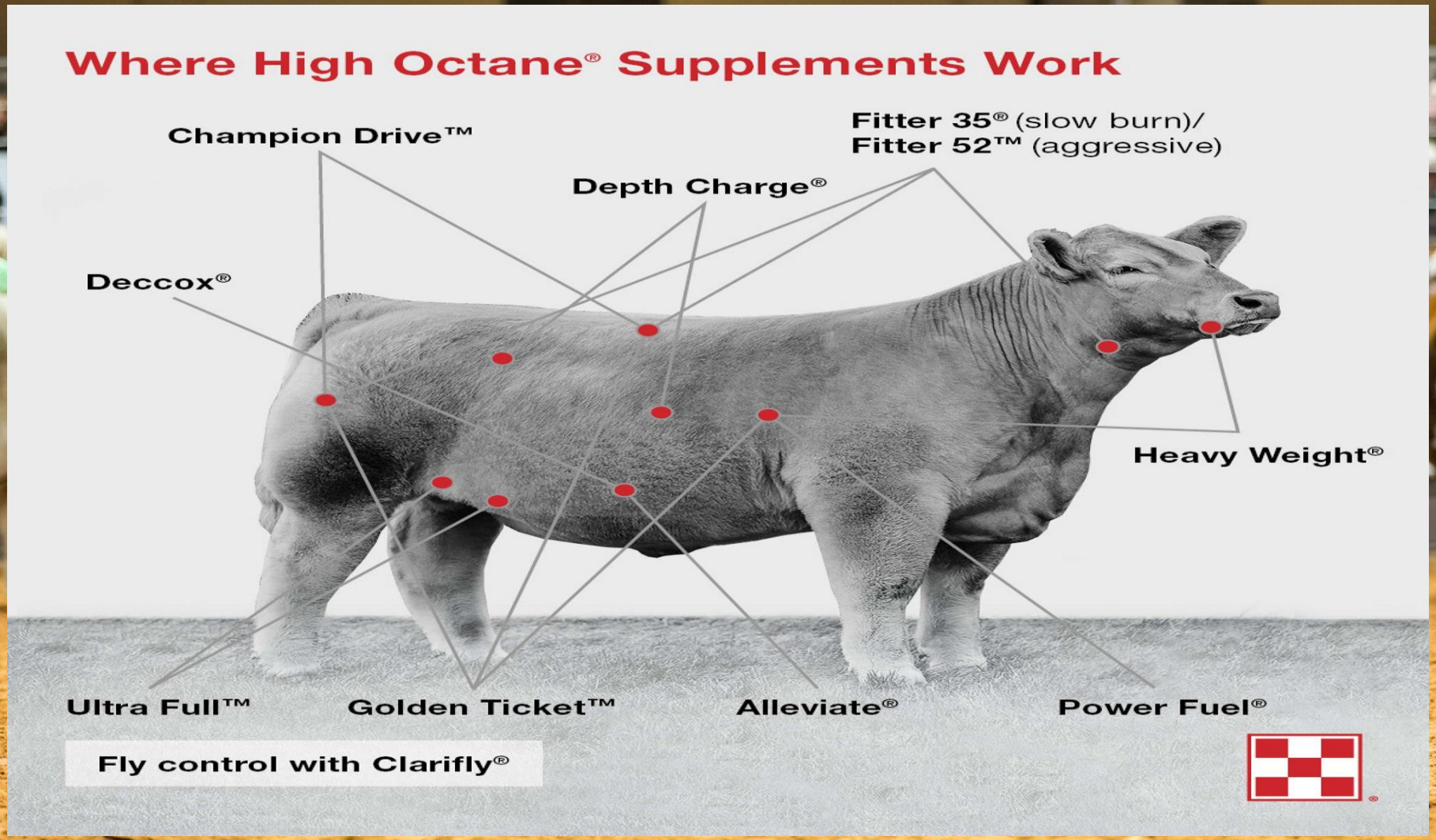
- Used to maintain a steer in its current body condition
- In a perfect world you won't have to use it

Making your own ration

- Used if you have access to your own grains or if you don’t want to purchase a lot of show feed
- Concentrate for custom mixing show cattle feeds

Supplements, rib shape

More supplements



Beta Agonist feeding

- MAKE SURE YOUR SHOW ALLOWS YOU TO FEED THIS
- Follow the feeding instructions exactly, this is not something you mess with
- Pay attention to when you start feeding and stop feeding

Thank you! Questions?

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