Brooding and Pullet Development

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Objective:

- To discuss the proper method to grow a strong pullet that will have sufficient reserves to lay at a high rate of lay and maintain good shells throughout the entire laying cycle.

Start Clean : Stay Clean

- Starts when previous flock goes out
- Sweep down dust and cobwebs
- Scrape, scoop, and remove manure and other organic material
- Wash with soap and hot water
- Disinfect with broad spectrum disinfectant
- Do not forget the feed bin, clean and disinfect
- Dry barn quickly to prevent bacterial bloom
- Disinfect water lines

Temperature

- Bring house to desired temperature at least 24 hours prior to chick arrival to warm equipment and floor
- Recommended start temperatures vary by breed.
- Smaller chicks generally need higher starting temperatures, 90ºF

Temperature

- Temperatures should be measured at chick level, not at caretaker level.
- Brown chicks, in general, need higher brooding temperatures.
- Humidity levels are also very important, a minimum of 70% RH is necessary

Temperature

- Watch the chicks to decide if the temperatures in the barn are correct.
- Cold chicks will huddle and chirp constantly.
- Maintain a minimum ventilation at all times to reduce pathogen concentration.

Temperature

- 88 - 90ºF for the first few days
- 86 - 88ºF for the rest of the first week
- 84 - 86ºF for week 2
- Decrease temperature 2 degrees per week down to 72 - 74ºF.

Cage Papers

- MUST cover the bottom of the cage especially up to the waterers.
- Chicks should not be expected to walk off the papers to reach the drinkers.
- Remove the paper between 7 and 10 days of age.

Feed First or Water First

- Debate continues.
- Some say chicks should not be fed until they have been in the cage and found the waterers.
- Others say the chicks should have feed immediately upon placement.

Lights

- High light intensity at placement to see feed and water.
- Some breeds may recommend intermittent lighting for the first few days to stimulate consumption.
- Reduce intensity once feed and water are found and chicks are growing as expected.

Lights

- Stacked deck systems need special attention to lighting in middle and lower decks.
- Water lines are usually in the back of the cages and therefore dark.
- Drop lights should be used in these systems.
- Cage papers will cast shadows on cages below.

Floor Brooding

- Not as common now, but still some use this method.
- Temperatures should be measured under the brooder and chicks watched for signs of chilling or overheating.
- No more than 750 chicks under a typical pancake brooder stove.
- Watch for drafts
- No hardwood shavings….mold challenges.

Space Requirements- Floor Space

- Space similar between breeds.
- 155 sq. cm per bird to 5 weeks, double after that.
- Floor space…20 birds per sq. meter to 5 weeks, 10 birds after that.

Space Requirements- Feeder Space

- 2.5 cm of trough space per bird recommended up to 5 weeks of age.
- 5.0 cm per bird recommended from 5 weeks to housing in layer house.
- Pan feeders (cage)- 24 chicks per pan to 5 weeks.
- Pan feeders(cage)- 12 chicks per pan after that.
- Pan feeders (floor)- 50 chicks early then 25

Space Requirements-Drinker Space

- 16 chicks per nipple or cup to 5 weeks of age, 8 chicks from then to housing.
- Cups or Nipples (floor houses): 24 chicks per unit to 5 weeks, 12 from then to housing.
- Trough (floor houses): 1.25 cm per bird to 5 weeks and 2.5 cm after that.

Water Access

- Getting to water as soon as possible is critical
- Lower water pressure on nipples and cups to ease access.
- Cage paper should cover enough cage to assure the chicks can reach water without stepping off the paper.

Water Access

- Water temperature that is cold can lead to pasting.
- Vitamins and Electrolytes with sugar-based carriers can lead to pasting and dehydration.
- Trigger waterers to ensure chicks know where the water is.

Lighting Program

- Can influence the onset of production and the egg size distribution to some degree.
- Most breeds are similar in the lighting program used for the first few weeks.
- After this time, breed based recommendation vary and should be followed.

Lighting Program

- Day length the first two or three days should be 22 – 23 hours.
- Long day length gives time to eat and find water.
- Day length should be reduced weekly after that until a constant day length for growth is reached.

Lighting Program

- Optimum growing day length depends on many factors:
  - » Breed
  - » Type of housing (open, totally light controlled)
  - » Time of year
  - » Location of the farm
  - » Egg size demands of the producer
  - » Past history of attaining body weights on pullets

Lighting Program

- The shorter the day length that the bird can be grown on, the more control you have over the onset of production.
- Most recommendations are for growing flocks on about 10 – 12 hours.
- Constant day length for growing helps the bird recognize the stimulation and therefore respond to the day length increase when given.

Lighting Program

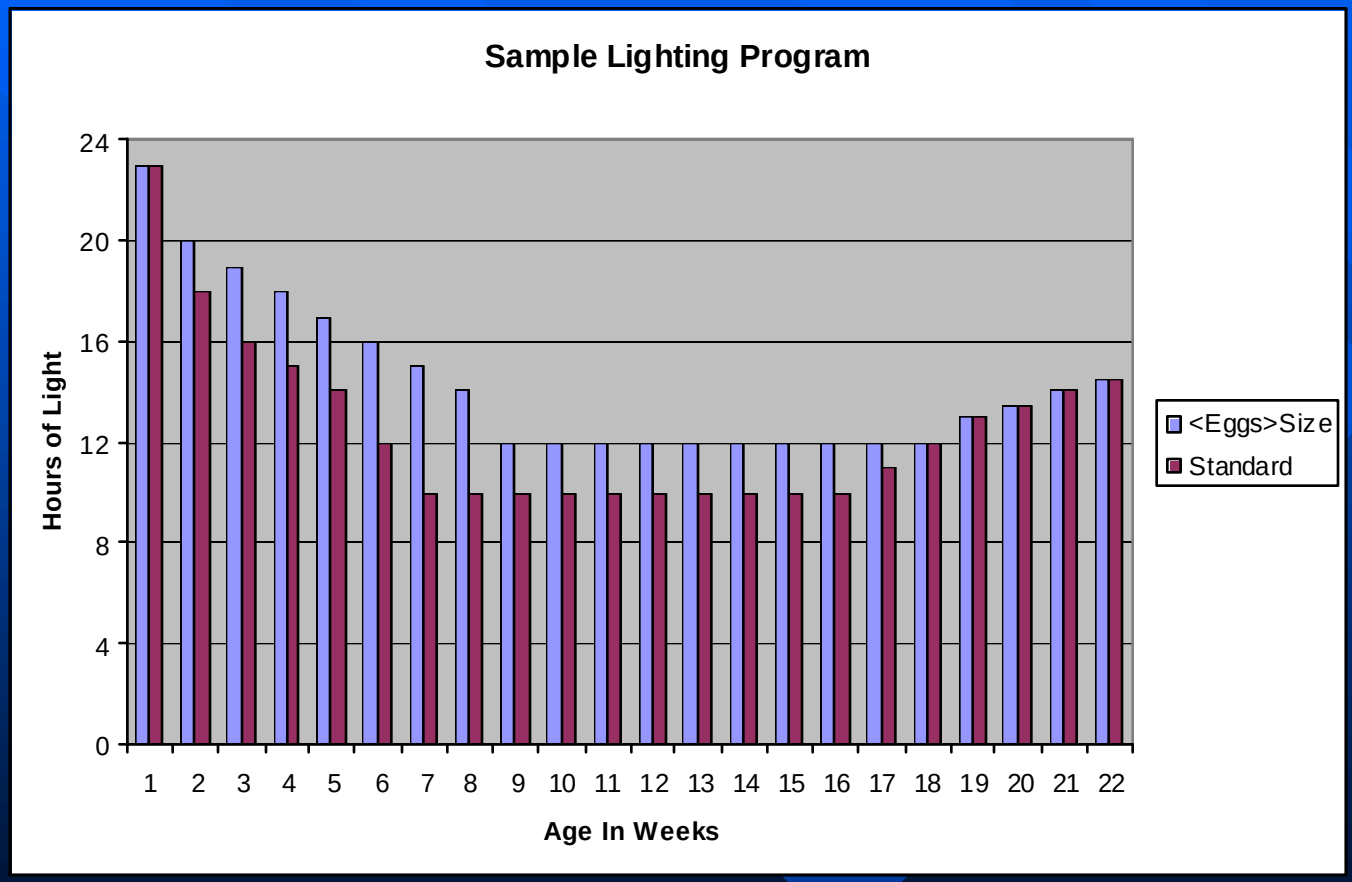
- Intensity should also be a consideration in planning.
- Intensity can be stimulatory or a dissimulator, but day length changes overrides intensity changes.
- High intensity early, then lower to prevent possible feather pulling or pecking.

Lighting Programs

- Incandescent versus Fluorescent….
  - Incandescent dimmers are cheap and effective
  - Fluorescents use less hydro.
  - Incandescent bulbs cheap, but burn out sooner

  I personally would prefer incandescent as they are more flexible and more easily dimmed. Light is less harsh to the chicks eyes.

Lighting Programs



Beak Trimming

- Most complicated service done to a flock.
- Often ruins a flock if done improperly.
- All breeding companies select for low levels of cannibalism.
- Higher producing birds tend to be more aggressive towards their neighbors.
- High density housing worsens the effects.

Beak Trimming

- Recommended at 7 – 10 days of age in most housing systems. A second trim may be necessary with open sided housing in the Southern US
- Day-old trim works and is being performed in Quebec and the Prairie Provinces routinely.
- “New” microwave beak trim being tested.

Beak Trimming

- At 7 to 10 days….
  - » Add Vitamin K to the water for two days before through two days post trimming.
  - » Increase depth of feed.
  - » Decrease water pressure.

Beak Trimming

- Blade temperatures are important and should be monitored. Different breeds need different temperatures for effective control of regrowth
- Blades too hot cause “bubble beaks” and failure to heal.
- Non-trimmed birds less efficient.

Vaccination Programs

- Vaccination programs should be developed for local conditions and should not be something that you get out of a management guide.
- Ask local veterinarians and other producers to see what diseases are likely to be present in the area.

Vaccination Programs

- In general, all pullets are vaccinated for the following diseases:
  - » Marek's Disease
  - » Newcastle Disease
  - » Infectious Bronchitis Disease
  - » Infectious Bursal Disease
  - » Avian Encephalomyleitis

Vaccination Programs

- Other less common vaccinations that are given:
  - » Fowl Pox
  - » Mycoplasma gallisepticum
  - » Infectious Laryngotracheitis
  - » Salmonella
  - » Infectious Coryza
  - » Fowl Cholera

Vaccination Programs

- Usually repeated vaccinations given for NC, IB, and IBD to ensure titer development and response after maternal antibodies have disappeared.
- Timing most critical for IBDV.
- IBV vaccination includes multiple strains to increase the breadth of the protection against other strains.

Vaccination Programs

- ILT vaccine has been blamed for most breaks in the US.
- New vaccine available that is a “vectored” vaccine which should eliminate this problem.
- Fowl Pox breaks, add Pigeon Pox to correct.
- M.g. vaccines very small particle size to get response.

Vaccination Programs

- Respiratory vaccines (NC and IB): given by increasingly stronger methods and more virulent vaccines to ensure protection.
- Salmonella vaccines being used more frequently. Live and killed available.
- Boost in lay versus inactivated vaccine
  - Multiple age farms versus single age farms.

Vaccination Programs

- 18 days NC, IB, IBD
- 28 days IBD
- 35 days NC, IB
- 63 days NC, IB
- 70 days AE, Fowl Pox
- 98 days NC, IB

Feeding Programs

- Many different programs available that work.
- Key is to develop a strong skeletal system, good lean muscle mass, and sufficient reserves to tap for peak and sustained production.
- Different breeds have different growth patterns.

Feeding Programs

- Early Development:
  - First 8 weeks are most important.
  - “can not make a silk purse out of a sow’s ear”
  - High energy and high protein diets for starter or prestarter diets. (1360 kcals, 20%CP)
  - Mineral quality and quantity are critical for skeletal development. (1.0% Ca, 0.5% av. P)

Feeding Programs

- Developer Diets
  - Most strain to strain variation
  - Some breeds recommend increasing energy levels to get weight, others decreasing.
  - Watch for development of fat in the abdomen.
  - Watch pullet Calcium and phosphorus levels to prevent gout development later.

Feeding Programs

- Pre-Lay or No Pre-Lay
  - Does not matter, if pre-lay is used properly.
  - At 5% production, you have 5% of the flock laying at 100% production. Those birds need a layer diet.
  - LAYER FEED BEFORE FIRST EGG!!!!!

Feeding Programs

- Calcium and Phosphorus Feeding
  - Feed close to breeder recommendations.
  - Watch for phytase usage by feed company.

  Phytase is a good product if given the credit is deserves and not more. Usage and credit should also account for grains and non-grain feed ingredients in the diet.

Plan the Work

- Monitoring
  - Weigh birds every other week (minimum)
  - Monitor light clocks- daily
  - Livability-daily
  - Feedings-daily
  - Water consumption-daily
  - House temperatures and air quality- several times daily
  - Beak trimming, vaccinations, feeding programs

Plan the Work

Work the Plan