Adapting to Extreme Temperatures in the Islands Region

Small Flock Poultry Management

Overview

Extreme weather events are increasing in frequency and intensity for Vancouver Island and nearby coastal regions, making proactive climate management an essential part of small flock husbandry. Failure to manage temperate extremes can quickly lead to animal welfare issues, production losses, and even death in your flock.

Chickens are most comfortable between 18°C and 25°C. Outside this range, they must work to control their body temperature. Sudden temperature changes are especially dangerous, as birds may not have time to adjust.

Each flock is different. Breed, species, housing type, stocking density, and production goals all influence how birds respond to weather and what strategies will work to manage extreme temperatures (see Table 1 on page 3). Plan your flock management using local climate conditions, including past highs, lows, rainfall, and snowfall while expecting longer and more extreme periods of heat and cold.

Managing Heat Stress

Chickens have a normal body temperature of 40–41°C. Heat stress becomes a serious risk when air temperatures rise above 30°C. The highest risk often occurs in late afternoon or early evening, when heat has built up over the day.

Humidity plays a major role. Chickens cool themselves by panting, because birds cannot sweat. When air is humid, moisture cannot evaporate easily, making cooling through panting ineffective and increasing the risk of death.

Impacts on Production and Health

Even moderate heat stress can lead to reduced egg production, poor shell quality, slower growth, wet manure, dirty eggs, and a weakened immune system.

Signs of Heat Stress

- Panting (open-mouth breathing)
- Wings held away from the body, pale wattles & combs
- Lying in shade, on cool surfaces, digging into litter or flat on the floor
- Reduced activity or lethargy, reduced eating and drinking

Preventing Heat Stress

Airflow and Shade: Use fans, clean vents, and reduce stocking density. Provide natural or artificial shade in outdoor areas. Misters can be set up in shaded areas, but make sure to monitor them closely. Avoid excessive moisture that can soak feed, wet the litter, and dangerously increase local humidity, defeating the purpose of evaporative cooling.

Figure 1. Providing ample space per bird, deep bedding and extra feeders and waterers allows birds to spread out and cool off. Shade cloth and misters over the outdoor runs also keep the surfaces cool.

Water Management: Birds may drink up to four times more water during heat. Provide multiple shaded water sources and keep water below 25°C. Flush waterlines multiple times in the afternoons to introduce cooler water and encourage drinking.

Feed Management: Digestion creates body heat; avoid feeding during peak heat. Remove feed ~6 hours before the hottest period and reintroduce it after temperatures drop. Providing a brief period of soft lighting after dusk can encourage eating and drinking and reduce production impacts due to lack of intake during the day.

Supplements: Add electrolytes and vitamins to drinking water during heat events. Start this a few days before an anticipated heat wave if possible.

Table 1. Comparison of comfortable temperature range (in degrees Celsius) for common poultry species. Keep in mind, this does not consider humidity or Humidex values.

	Chickens	Turkeys	Ducks
Normal body temperature	40.6-41.7°C	40.6-41.5°C	38.9-41.1°C
Optimal temperature range (juveniles)	22-26°C (4-6 weeks)	15-24°C (6-10 weeks)	18-26°C (3-4 weeks)
Optimal temperature range (adults)	18-24°C (6 weeks+)	7-24°C	4-27°C

Additional Stress Reduction: Minimize handling and schedule chores during cooler parts of the day. Additional feeders and waters can help reduce crowding, if space allows. Place frozen water bottles in nesting boxes (replace a few times a day). Offer frozen fruits, such as chopped watermelon, to cool birds without overfeeding them.

Emergency Treatment: Birds showing severe distress (heavy panting, pale wattles & comb, weakness, or collapse) need immediate cooling:

- Place in cool (not icy) water up to the neck, keep the head above water
- Once cooled, place into a cool, quiet, shaded area and provide cool water
- Monitor until fully recovered

Managing Winter Conditions

Housing is essential for all species of poultry to thrive during coastal BC winters. Your coop needs to protect the flock from harsh wind and cold, but entirely cutting off airflow will cause more harm than the cold itself. Poor ventilation can lead to moisture buildup, ammonia, and respiratory disease. Balancing winter insulation with proper ventilation to remove dampness is key to keeping the flock healthy.

Figure 2. Ducks can thrive in a wider range of temperatures than chickens. Adults are comfortable outdoors down to 4°C, whereas juvenile ducks and adult chickens require housing anytime temperatures fall below 18°C. See Table 1 above, and the resources on the last page for more information.

Housing: Ventilation over Insulation

Use windbreaks such as trees or buildings. Keep upper vents open to remove moist air while preventing drafts. Position the coop using natural wind blocks, such as adjacent buildings, screen porches, or dense tree lines. Ensure easy access to water and electricity from a winterized supply if the coop is not fully winterized. Build coops strong enough to handle maximum snow loads or have a plan for snow removal.

Bedding Management

Maintain dry bedding. Replace wet bedding often and keep a thick layer to help insulate the floor and absorb moisture.

Cold Stress and Frostbite Prevention

Provide draft-free, dry roosting areas where birds can huddle together at night. Apply petroleum jelly to combs and wattles to help protect against frostbite.

Heat lamps may be used with caution, but they are a fire risk. Secure them away from combustible materials and ensure birds can move away from the heat source if they get too warm.

Water Supply

Check water frequently for freezing. Use heated bases or insulated lines if possible. Always have manual watering equipment available as a backup in case of damage or power failure. Snow cannot replace drinking water.

Nutrition and Molting

Chickens need more energy in winter to maintain body heat, so expect to increase feed volume during cold weather. Additionally, birds over one year old will molt. Consider higher protein diets during molt and consulting a veterinarian or poultry nutritionist to advise on nutrition. Provide grit when snow covers the ground for extended periods of time, as natural grit will be inaccessible.

Outdoor Enrichment and Predator Control

Add enrichment to encourage movement and prevent boredom that may lead to problem behaviours. Provide outdoor perches or straw bales so birds can get outside while being up off the ground, hang vegetables or hang shiny tin cans to encourage exercise. Be aware that predators may be more active in winter. Inspect fencing and remove snow to prevent damage that can let in predators.

Figure 3. Heavy snowfalls of over 30 cm of wet snow are not unusual on the Coast, and snowfalls over 60cm occur periodically. Local weather data can be found at www.bcagriweather.ca.

Summary

Just like any other emergency response, proactive planning is essential to successfully weathering periods of extreme temperatures. Take the time to create a plan and comprehensive checklist that covers both summer heat waves and cold snaps or blizzards. Stock up on appropriate equipment now, as during extreme events many suppliers will run out. Keep supplies such as feed, bedding, electrolytes, and backup manual water systems on hand at all times. Maintain transport crates for emergency flock movement, such as in case of floods or wildfires.

Emergency Preparedness Resources:

- Preparedness is the first step- visit Emergency preparedness for producers for guides such as Emergency Management Guide for BC Small Mixed Farms, checklists, plan templates, and training for staff and neighbours.
- The Beneficial Management Practices Program may provide planning support and/or funding to support extreme weather adaptations for your farm. Visit Beneficial Management Practices Program, or discuss with your EFP Planning Advisor.
- Consider enrolling in Agriculture Insurance and Income Protection Programs for peace of mind.
- For Wildfire preparedness, visit FireSmart BC Farm & Ranch Wildfire Preparedness
- For health and worker safety information, visit Emergency Planning for Extreme Weather | AgSafe BC, Heat Safety | Island Health and Cold Weather Safety | Island Health
- Thrive under pressure. Cultivate mental health and resilience with resources like AgLife.ca and the National Farmer Wellness Network.

Find more information:

Guides and Manuals:

Small Flock Poultry Health Manual
Codes of Practice for the care and handling of farm animals - NFACC
National Farm Building Code of Canada 1995
Managing Extreme Heat Impacts Project Report - Fraser Valley
Biosecurity basics for small flock owners: 5 steps
Biosecurity Guide for Non-Supply Managed Poultry

Industry Links:

Small Lot Farms and Backyard Flocks - BC Egg
Small Lot Program - BC Chicken Marketing Board
British Columbia Turkey - Flock care
British Columbia Broiler Hatching Egg Commission
BC Poultry Health Network

BC Ministry of Agriculture & Food Website Links:

Poultry - Province of British Columbia
Animal Health Centre
Be prepared for extreme heat and drought
B.C. AgriWeather Dashboard
Emergency management for agriculture
Ventilation of agricultural structures
B.C. Agricultural Fencing
Farm Building Engineering

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