

Agricultural claims and climate volatility

Understanding the complexity of greenhouse horticulture losses

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Executive Summary

Greenhouse and controlled-environment agriculture operations are fundamentally different from traditional property risks. When a greenhouse loss occurs, the damage extends beyond a building or piece of equipment. It can disrupt an entire production ecosystem involving living crops, environmental controls, labour, market commitments, and revenue generation. A relatively minor equipment failure can quickly cascade into significant crop losses and business interruption exposure.

As climate volatility increases and Canadian producers continue investing in advanced growing technologies, insurers face growing exposure to complex horticulture losses. Understanding how crops, infrastructure, and business operations interact is essential to achieving accurate, defensible claim outcomes.

According to Agriculture and Agri-Food Canada, AgriInsurance remains one of the most important risk management tools available to producers, with approximately $5.5 billion in program costs between 2017 and 2022, including federal and provincial contributions. The evaluation concluded that no comparable mechanism exists that provides equivalent coverage at an affordable cost for Canadian producers.



> “A greenhouse claim is about understanding how a disruption affects the entire production system and the crop’s ability to generate revenue.”
>
> John Fitzgerald
>
> Agriculture practice leader & executive general adjuster, Global Technical Services

Figure 1: Components of a greenhouse production system

Crop production depends on the interaction of environmental controls, infrastructure, labour resources, and market commitments.

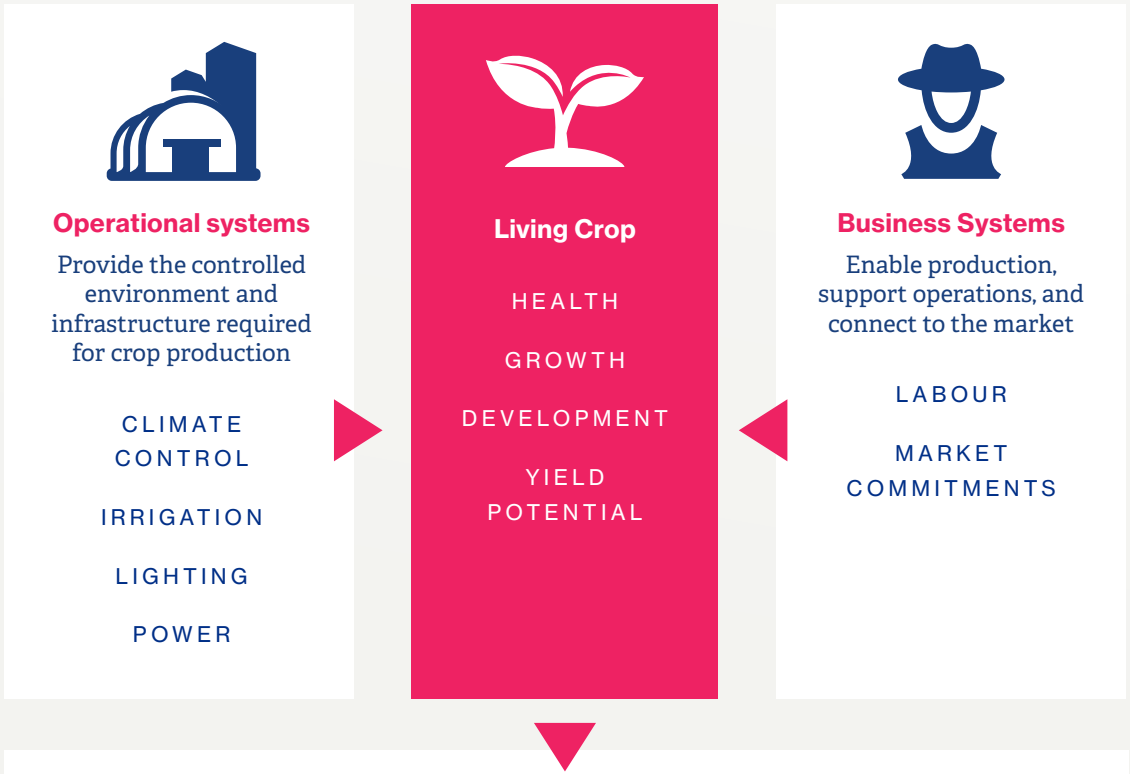


Figure 1. Crop production depends on the interaction of environmental controls, infrastructure, labour resources, and market commitments. A disruption affecting any component can influence growing conditions, production schedules, and financial outcomes.





The Greenhouse as an integrated production system

A greenhouse functions as a highly interconnected production environment where crop health depends on multiple systems operating within tight parameters.

Climate control, irrigation, lighting, power, labour availability, and market demand all influence production outcomes. Failure within a single system can create downstream consequences long before visible crop damage appears.

For claim professionals, this means investigating what failed, how that failure altered growing conditions and affected crop performance. The true loss often lies in the chain reaction that follows the initial event.

Canadian producers have access to crop insurance programs designed to respond to production losses arising from natural hazards and other insured events. Once a loss occurs, the focus shifts to understanding the cause of loss, assessing crop impacts, preserving critical evidence, evaluating business interruption exposure, and developing a clear picture of the financial outcome. Effective claim management requires coordination among adjusters, agronomic experts, engineers, accountants, insurers, and producers to support informed claim decisions.

Why Horticulture claims are more complex

Unlike conventional property losses, horticulture claims present six unique challenges:

- **Perishability**
- **Technology dependence**
- **Time sensitivity**
- **Specialized valuation**
- **Biological variability**
- **Evidence pressure**

Crop damage continues to evolve after the triggering event. A brief climate-control outage may affect production for weeks or months. Recovery outcomes vary based on crop variety, growth stage, and environmental conditions at the time of loss.

This complexity is increasing as protected agriculture expands across Canada. Crop insurance programs continue to insure millions of acres nationally, reflecting both the scale of agricultural production and the growing importance of risk management. While insurance programs provide an important mechanism for managing agricultural production risk, the adjustment of horticulture losses presents a distinct set of challenges. Understanding how an insured event affects crop health, environmental conditions, production schedules, and financial performance is essential to accurately assessing the extent of loss. According to Agriculture and Agri-Food Canada, nearly $3.4 billion was expended federally through AgriInsurance between 2017-18 and 2021-22.

Figure 2: Horticulture loss progression model

Claim analysis traces the event through operational impact, crop response, and financial outcome.

1 INITIAL EVENT
Fire, storm, outage, mechanical failure, water escape

2 DAMAGED SYSTEM
Structure, equipment, controls, utilities, distribution

3 CHANGED GROWTH CONDITIONS
Temperature, humididty, water, light, airflow, contamination

4 CROP IMPACT
health, mortality, yield, quality, growth timing

5 REVENUE IMPACT
Lost output, delayed sales, changed grade, extra expense

Claims workstreams run across the full progression

CAUSATION

MITIGATION

EVIDENCE PRESERVATION

QUANTUM

COVERAGE ANALYSIS

Defensible claim outcome depends on connecting the loss event to the revenue effect

Figure 2. Claim analysis traces the event through operational impact, crop response, and financial outcome. A defensible outcome depends on connecting the loss event to production and revenue effects.



> One of the largest considerations when adjusting a horticultural loss is ensuring the focus isn't limited to the damaged components, but instead ensures the entire production consequences are taken into consideration"

John Fitzgerald
Agriculture practice leader & executive general adjuster, Global Technical Services

The first 24 hours: stabilize and preserve

The initial response to a horticulture loss can significantly influence the ultimate claim outcome.

A practical framework includes:

1. **Safety**
2. **Crop stabilization**
3. **Evidence preservation**
4. **Operational continuity**
5. **Communication**

The challenge is balancing mitigation with investigation. Producers must often act immediately to stabilize growing conditions, yet critical evidence regarding causation may be lost if damaged equipment is repaired or removed prematurely.

As Alberta's Agriculture Financial Services Corporation (AFSC) notes, timely notification and documentation are essential components of the claims process. Depending on the program involved, adjusters may require inspections before reseeding, harvesting, or implementing other corrective actions.

Building the production story

The strongest horticulture claims rely on records that existed before the loss occurred.

Critical evidence sources include:

- CULTIVATION PLANS
- PRODUCTION RECORDS
- ENVIRONMENTAL MONITORING DATA
- CROP OBSERVATIONS
- SALES CONTRACTS
- MITIGATION RECORDS

Environmental control systems often provide a detailed timeline of temperatures, humidity levels, irrigation cycles, alarm events, and system failures. Combined with historical yield records and market data, these records help establish the difference between expected and actual production outcomes.



Loss calculation =
Expected without loss +
Actual after loss

Quantum: the calculated value of the loss

Defensibility: the evidence supporting the calculation

Business interruption exposure frequently extends beyond physical repairs. Even after equipment is restored, crops may require additional weeks or months to recover, mature, or be replanted before normal production levels resume.

Quantifying crop and business interruption losses

Unlike many property claims, horticulture losses cannot be assessed solely through repair costs. Adjusters must compare two production paths:

Figure 3: Crop loss assessment framework

Quantification compares expected production with actual production, then applies claim-specific adjustments



Figure 3. Quantum is calculated by comparing expected production with actual production and applying claim-specific adjustments, including mitigation, alternative supply, saved expenses, and policy provisions. Defensibility comes from the clear operational, financial, and documentary evidence supporting that calculation.



> Careful consideration needs to be taken when attempting to mitigate a failed crop. Sometimes the greenhouse can be fully repaired, but the window for planting has passed and the crop is no longer viable. These impacts don't end when the greenhouse has been repaired."

John Fitzgerald
Agriculture practice leader & executive general adjuster,
Global Technical Services

A practical framework for defensible outcomes

Successful horticulture claim adjustment requires more than technical investigation. It demands an understanding of biological production, operational continuity, financial impacts, and evidence preservation.

The most effective adjusters consistently:

- Understand the production system before valuing damage
- Stabilize crops while preserving evidence
- Build quantum using operational and accounting records
- Separate facts from coverage interpretation
- Clearly communicate uncertainty and next steps

As controlled-environment agriculture continues to evolve, greenhouse losses will increasingly require a multidisciplinary approach involving engineers, agronomists, forensic accountants, environmental specialists, and adjusters working from the same evidence framework.

For insurers, the goal is to understand how that failure altered production and changed the financial outcome for the insured operation.

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