

From Temperature Log to Claim

How temperature abuse accumulates, how to read reefer logs against USDA ranges, and how PACA good-arrival tolerances intersect with cold-chain physics — plus eCFR entry points for 49 CFR Part 370 claims process and 7 CFR Part 46.

ProspectSentinel

~13 min read

USDA AH-66 + HB 669

For shippers & reefer desks

Claim Analyzer

PACA Calculator

Cold Chain Index

Transit Guide

Claim package checklist

Claim deadline calculator

Executive brief

HB 669 opens with the claim thesis: quality loss is a function of time and temperature abuse; abuse is additive across loading, transit, and unloading — even short events can matter by the time product reaches destination. AH-66 supplies the scientific ranges that define what “abuse” means per commodity. PACA good arrival tolerances address condition/defect percentages at receiving — a different but intersecting lens.

Quality loss is a function of time × temperature abuse (additive)



Short abuses at each stage stack into arrival quality loss (HB 669)

Build the evidence stack

1. **Commodity identity & grade/PO requirements**
2. **USDA storage/transit bands** — [Cold Chain Index](#), [Produce Shipper Transit Guide](#)
3. **Pulp temps** at origin and destination (probe method, depth, location)
4. **Reefer download** — setpoint, return air, door events, power-off gaps
5. **Load design** — mix legality, airflow, multi-temp seals
6. **Time stamps** — harvest/precool/load/seal/transit/appointment/unload
7. **Inspection** — USDA/private survey; photos with scale and labels
8. **PACA tolerance math** when defects are the battleground — [PACA Good Arrival Calculator](#)

Common failure modes (map to papers)

- Field heat at loading → WP01 precool
- Stable but illegal cold for tropicals → WP02 chilling
- Legal temp, illegal mix → WP03/04 ethylene & groups
- Good setpoint, dead airflow → WP05
- Odor taint with clean temps → WP07

Interactive excursion framing: [Perishable Claim Analyzer](#). Interactive defect tolerance framing: [PACA Good Arrival Calculator](#).

Legal floor vs produce physics (eCFR)

USDA handbooks and the tools above answer: *was the product handled inside a defensible temperature / mix band?* Federal regulations answer a different set of process questions.

LAYER	WHAT IT IS	PUBLIC ENTRY POINT
Physics & commodity bands	Storage/transit temps, precool, airflow, ethylene, groups	AH-66 · HB 669 · this library
Produce dealer rules (PACA)	Licensing and trade practice framework for produce dealers; good delivery standard for certain commodities	7 CFR Part 46 · § 46.44 · PACA Good Arrival Calculator
Motor carrier claim process	How loss/damage claims are filed, investigated, and disposed of under FMCSA claim rules	49 CFR Part 370 · esp. § 370.3 (filing) · § 370.9 (disposition timing themes)

Claim package — process checklist (educational)

Use the interactive [Freight claim package checklist](#) built from Part 370 themes. Pair with the [deadline calculator](#) for Carmack/minimum period framing. Always confirm contracts, tariffs, and current eCFR.

Two tracks often run at once on produce. Temperature/physics evidence (this paper) may sit alongside PACA condition/defect analysis ([PACA Good Arrival Calculator](#)) and a carrier claim file (Part 370). Do not assume one document set answers all three.

Shipper vs broker posture

Shipper

- ☐ Release only with pulp records and photos.
- ☐ Write mix prohibitions explicitly.
- ☐ Preserve reefer downloads immediately when issues arise.

Broker

- ☐ Do not accept “it’s bad” without timeline reconstruction.
- ☐ Separate temperature abuse from transit delay from poor precool from bad mix.
- ☐ Keep communications factual; tools cite public USDA ranges and eCFR entry points — still not legal advice.

Disclaimer reminder: These tools and papers support understanding. They do not replace counsel, PACA practitioners, or surveyors.

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FAQ

- ▶ Is this official USDA guidance?
- ▶ Can I share these with customers?
- ▶ Where are the interactive tools?

Sources & interactive tools

- [USDA AH-66 — The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks \(2016\)](#).
- [USDA AMS HB 669 — Protecting Perishable Foods During Transport by Truck](#)
- **Federal rules (eCFR):** [7 CFR Part 46 — PACA regulations](#) · [49 CFR Part 370 — Principles and practices for the investigation and voluntary disposition of loss and damage claims](#)
- [Cold Chain Index](#) — 200+ commodity storage/transit matrix + co-load checker
- [Produce Shipper Transit Guide](#) — dock setpoints, mix load, checklist
- [Reefer Precool Time Estimator](#) — half-cooling-time style estimator
- [Perishable Claim Analyzer](#) · [PACA Good Arrival Calculator](#) · [Produce Truck Rate Explorer](#)
- [Freight claim package checklist](#) · [Claim / Carmack deadline calculator](#)

IMPORTANT NOTICE

This publication modernizes and explains **public USDA guidance** and, where noted, points to **public federal regulations on eCFR.gov** for educational use by shippers, brokers, carriers, and operators. It is **not** an official USDA or DOT document, and it is **not** legal, insurance, PACA advocacy, food-safety certification, or professional claims advice. Always verify current commodity specifications, contracts, and the *current* eCFR text with the controlling authority and your counsel.

Primary sources: USDA-ARS Agriculture Handbook 66 (2016); USDA-AMS Handbook 669, *Protecting Perishable Foods During Transport by Truck* (1995, reprinted 2008), including Load Compatibility Groups from USDA Marketing Research Report 1070 (Lipton & Harvey, 1977). Selected federal regulation entry points: [7 CFR Part 46 \(PACA\)](#); [49 CFR Part 370 \(freight claims\)](#).

Full series

00 Cold Chain Operating System

01 The Reefer Is Not a Precooler

02 Colder Is Not Safer

03 Ethylene: The Invisible Load Killer

04 USDA Groups 1–8: The Mixed-Load Playbook

05 Airflow, Load Patterns & Multi-Temp Zones

06 Commodity Setpoint Desk Guide

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