

Protecting U.S. Rural Pulse Processors: A Regional Economic and Risk Management Analysis

This study quantifies the effects of drought shocks and export disruptions on U.S. pulse processors and the rural economies that depend on them, combining processor survey data, financial modeling, and national economic impact analysis.

Why this matters

Pulse processors are the critical value-added link between farmers, domestic food markets, and global exports. They anchor rural employment, support regional supply chains, and enable U.S. competitiveness in international pulse markets. Processors face the same weather and trade volatility as farmers, but without comparable risk-management tools. When shocks occur, processors absorb the impact between protected farm production and policy-driven export markets.

What we studied

- Uses processor survey data and a representative financial model to quantify shock impacts.
- Measures effects on throughput, revenues, margins, and employment.
- Analyzes both drought-driven supply shocks and trade-driven export disruptions.
- Captures direct, indirect, and induced economic effects at the national level.

Key findings

- Trade shocks cut throughput by over 40% and revenues by nearly 50%, turning profits into multi-million-dollar losses.
- Severe droughts reduce volumes by more than 50% and push operating margins deeply negative.
- A typical processor supports 55 direct jobs; severe shocks eliminate 20–25 jobs per facility.
- Processor disruptions create cascading effects: reduced demand for farm output, job losses in transportation and logistics, and lower household income.
- The most severe impacts arise when multiple channels move adversely simultaneously, as in real-world shocks.

Economic contribution of pulse processing

State	Activity	Jobs
North Dakota	\$250M	739
Montana	\$174M	516
Minnesota	\$99M	294
Washington	\$68M	201
Idaho	\$39M	116
National	\$792M	2,346

Every \$1 in processing supports \$1.54 in total economic output.

Estimated impact: trade disruption vs drought

State	Trade disruption		Drought	
	Activity	Jobs	Activity	Jobs
North Dakota	-\$120M	-282	-\$121M	-334
Montana	-\$84M	-197	-\$84M	-233
Minnesota	-\$48M	-112	-\$48M	-133
Washington	-\$33M	-77	-\$33M	-91
Idaho	-\$19M	-44	-\$19M	-52
National	-\$382M	-896	-\$383M	-1,060

Impacts calculated from the representative processor model scaled to state-level footprints.

Risk management gap

Pulse processors lack access to government-supported risk management tools

- Federal insurance or margin protection
- Futures contracts to hedge price risk
- No disaster assistance for throughput losses

Operating margins shift rapidly under shock scenarios:



- Financing needs rise from about \$400K to \$2.8–3.5M
- Processors self-finance shocks, farmers would insure

Critical lapse

Existing public programs support long-run capital investment, not short-run protection against margin compression or throughput collapse when processors need it most.