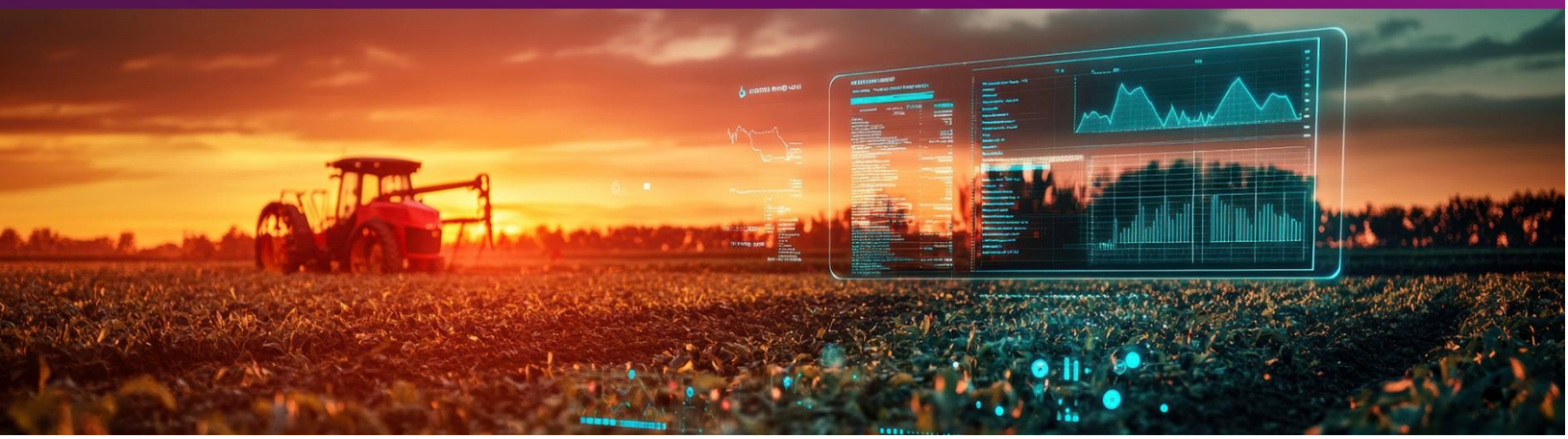

A New Underwriting Line Insurers Can Verify Themselves

Cotton producers in the Texas South Plains have spent the last two decades carrying a risk that traditional insurance was never built to price. Abandonment rates in drought years run 50 to 90 percent, and the yield-based products insurers have relied on for a generation measure production per harvested acre, a number that excludes abandoned fields entirely and looks best in exactly the years growers are hurting the most.

We've felt this gap from the insurer's side, too. A grower who loses 78 percent of a crop and still gets a policy that shows a positive yield anomaly is a grower who stops trusting the product. A claims history that doesn't reflect real loss is a poor foundation for pricing the next renewal. The tools available to price this risk simply haven't kept pace with what satellite data can now do.

At Symphony Grow, we partnered with Agrograph, a data provider using satellite data and machine learning to turn field level crop data into yield predictions, because we believe the case for a satellite-verified parametric cotton product is no longer theoretical. It's built on 45 years of production data across 24 counties in the Texas South Plains, and we think it deserves a direct look from insurers ahead of the 2027 program year.

Yield Insurance Breaks Down in the Worst Years

Standard yield insurance measures production per harvested acre. In a bad year, only the best fields get harvested at all, so that number is biased upward exactly when the truth matters most. A producer who plants 300,000 acres and harvests 65,000 at 600 pounds per acre has suffered a 78 percent production loss while carrying input costs across the full planted area. Standard yield per harvested acre shows a positive anomaly for that same event.

Agrograph corrects this with a production per planted acre metric, treating abandoned acres as zero yield. It's the number that reflects what a grower actually lost, and the number this product is priced against.

Built on Satellite Data

The trigger uses two vegetation indices, LSWI for canopy water content and VCI for vegetation condition, drawn from Landsat and Sentinel-2 imagery and mapped to USDA cotton field boundaries. When county-level index values fall below a calibrated threshold during July through September growing window, a payout triggers automatically. There's no loss adjuster, yield survey, or dispute over field conditions. And the underlying satellite data is public record, so an insurer, a reinsurer, and a grower can each verify it independently.

Satellites Beat Climate Models by a Wide Margin

On production loss, vegetation indices add 0.49 in adjusted R-squared beyond the best available climate model, nearly doubling the explanatory power of a climate-only approach.

On catastrophic abandonment, the tail event that drives the largest claims, we tested a climate-only model against a satellite-augmented one on the identical sample of years. Climate alone predicts abandonment above 50 percent of planted acres with an AUC of 0.826 (AUC runs on a 0.5 to 1.0 scale, with 1.0 representing perfect prediction). Adding satellite data raises that to 0.869. Satellite data alone reaches 0.892. That gap holds on the same sample years and event rates, which is the fair comparison, and it shows up in precisely the years that matter most for solvency.

Loss Cost Math

At 80 percent coverage, the standard commercial reference point, the recency-weighted annual loss cost rate for this exposure is 9.51 percent of insured value. The satellite-based VCI trigger recovers 83.6 percent of that loss cost at a pure premium of 7.95 percent. The best available climate-only trigger recovers 56.3 percent of the same loss cost. That roughly 27-point gap is basis risk an insurer is either pricing correctly today or leaving unpriced.

Trigger Type	Pure Premium (80% Coverage)	Loss Cost Recovered
Loss cost rate (reference ceiling)	9.51%	100%
Satellite trigger (VCI)	7.95%	83.6%
Best climate-only trigger (GDD KDD35)	5.33%	56.3%

Before You Take Our Word for It

The figures above are computed across 1,051 county-year observations, but when a drought or heat event hits the region, it typically hits most of the 24 counties in the same year. Agrograph's own technical report is upfront about this: treated as fully independent, the panel overstates its own statistical power, and the effective sample size is closer to the 45 years of independent growing seasons in the record. Year-block resampling partially corrects for this, but the report is candid that the precise effect on confidence hasn't been fully quantified.

No policy has been bound under this trigger design yet. Agrograph's report lists actuarial certification and product filing among its remaining steps, which means the numbers above are a backtest against history, not a live claims record.

And the 83.6 percent recovery figure is an in-sample average. Tested out of sample, trained on 2008 to 2016 and tested on 2017 to 2025, the same trigger's basis risk rises to 27.0 percent, against 18.2 percent in sample. Separately, an estimated 5 to 10 percent of loss years involve losses, like quality degradation from excess moisture, that no version of this trigger is built to catch.

This document also doesn't size the total addressable premium across the 24-county footprint. We can walk through that with you directly, county by county, once we know the coverage tier you're evaluating.

None of this is a reason to pass. It's the difference between a research result and an underwriting file, and that's exactly what the next conversation is for.

Program Requirements

The data and actuarial foundation exist today, validated across a 1981 to 2025 panel and refined against current structural conditions, including Ogallala Aquifer depletion, in a 2000 to 2025 calibration window. What's left is scoping the program itself: a minimum bound premium, a capacity commitment and reinsurance panel structure, admitted or surplus lines status by target state, and the program administrator structure and authority. We'll bring specifics on each of these to the table with any insurer ready to evaluate this before the 2027 budget cycle closes.

Symphony Grow and Agrograph, Together

Agrograph built the trigger, the data model, and the historical record behind this product. We bring the placement relationships and the underwriting conversation it takes to move a validated research program into a bound line of business. Neither of us is pitching you alone.

Let's Talk Before Budgets Close

We're ready to walk interested insurers through the complete technical report, including county-level trigger performance, full actuarial detail, and the open items above. With 2027 budget cycles typically closing by October, that's a conversation worth having soon.

Contact TJ Frost, President, Symphony Grow, at tfrost@symphonyrisk.com

Let Us Play For You!