MCP SERVER | NO CODE | CLOUD HOSTED

Harvest Loss Calculator MCP

Pinpoint exactly where your grain revenue is slipping away.

Harvest Loss Calculator quantifies physical and financial grain losses during harvest time. Use this MCP to accurately estimate yield performance across various crops, compare your results against industry benchmarks, and calculate total financial impact from harvesting inefficiencies.

A+ Quality Score 100/100

harvesting | yield-loss | grain | efficiency | agronomy

MAINTAINED BY VINKIUS CLOUD FOR AI AGENTS · JUNE 2026
vinkius.com/mcp/harvest-loss-calculator

SCAN TO VIEW

The infrastructure that powers AI agents in the real world.

Vinkius connects AI to the world's software through secure, enterprise-grade infrastructure — enabling real-world execution at scale, built on the Model Context Protocol (MCP).

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the cloud infrastructure where AI agents connect to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Harvest Loss Calculator MCP

3 tools available
Cloud-hosted on Vinkius

You don't need to guess about your final revenue. This MCP gives you precision tools for estimating exactly how much physical or financial grain loss you incurred throughout the harvest cycle. Instead of relying on rough estimates or outdated field guides, you can instantly quantify losses in bags per hectare and calculate the dollar impact. The system lets you check industry standard maximum allowable loss for specific crops, giving you immediate context. You can also evaluate your entire harvest performance against those accepted limits. When everything is running smoothly, it shows exactly where your yield stands. We've packaged these calculations into a single catalog entry at Vinkius so you connect once and get access to this crucial agricultural data.

Core Capabilities

01 — Calculate total loss impact

Determines the overall physical and financial revenue loss resulting from various harvesting inefficiencies.

02 — Check crop benchmarks

Pulls up the industry standard maximum acceptable loss rate for any specified grain type.

03 — Evaluate harvest efficiency

Compares your actual measured losses to established industry performance limits, flagging potential issues immediately.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/harvest-loss-calculator** — connect your AI agent in three steps.

01 Identify the specific crop and input variables like expected yield, current loss percentages (e.g., pre-harvest, platform), field area, and market price.

02 Run the analysis to determine if your measured losses exceed accepted industry norms and calculate the total physical deficit across the specified acreage.

03 Receive a quantified report showing the total bags lost, the percentage of overall yield loss, and the resulting financial dollar amount.

The bottom line is that you get an actionable number showing your true profit margin after accounting for every inefficiency on the farm.

Built For

This MCP is for agricultural consultants, large-scale farm managers, and grain buyers. If your job involves assessing yield performance or managing crop losses across multiple fields, you need this tool. It gives you the numbers to prove whether a harvest was profitable or just marginal.

Farm Manager

Uses this MCP immediately after harvest to compare field-by-field performance against acceptable benchmarks and calculate total financial losses.

Agricultural Consultant

Runs simulations to advise clients on optimal harvesting protocols, using the tool to measure potential loss reduction percentages before planting season starts.

Grain Buyer/Trader

Verifies claimed yield metrics by running comparative reports that assess harvest efficiency and benchmark adherence across different supplier lots.

What Changes When You Connect

01 Stop guessing about yield loss. By running `retrieve_crop_benchmark`, you get the hard, industry-standard maximum allowable loss for any crop instantly, eliminating guesswork from your reports.

02 Calculate true financial damage with `calculate_harvest_impact`. You move past just knowing how many bags are lost; you know the exact dollar amount of that shortfall across hundreds of hectares.

03 Quickly rate a harvest's overall health. Use `assess_harvest_efficiency` to see if your total losses fall within acceptable limits, giving you a clear pass/fail grade for the entire season's effort.

04 Compare different fields against one standard. You can run multiple loss calculations and benchmark checks without having to manually cross-reference separate industry guides or spreadsheets.

05 Improve operational reports by structuring data around real metrics. Instead of qualitative statements, you provide precise figures showing total bags lost per hectare.

Real-World Applications

A field's yield was disappointing; I need to know if it's salvageable.

The farm manager runs the MCP and uses `assess_harvest_efficiency`. The agent returns a 'Critical' rating, showing that the total losses exceed the accepted industry limit. This immediately flags operational issues that need attention before next year.

I sold 100 hectares of corn, but I can't prove my loss numbers are accurate.

The consultant runs `calculate_harvest_impact` with all the field data and market prices. The agent calculates a definitive financial loss figure—say, $17,500—which is used to secure better pricing negotiations with the buyer.

I need to know if my specialty grain (Sorghum) has stricter loss limits than Corn.

The user asks for the benchmark. The MCP calls `retrieve_crop_benchmark` and returns a specific, low percentage requirement for Sorghum, allowing the farmer to adjust machinery or techniques immediately.

My previous harvest report was vague about *why* we lost grain.

The agent runs a full assessment using `calculate_harvest_impact`. The output breaks down losses by category (pre-harvest vs. threshing), providing concrete data that pinpoints exactly which phase caused the most significant financial damage.

Patterns to Avoid

Calculating loss without context

✗ AVOID

A user runs `calculate_harvest_impact` and gets a total loss of 5%. They assume this is fine because their last harvest was similar, missing the current industry standard.

✓ INSTEAD

Before calculating impact, always call `retrieve_crop_benchmark`. This first step gives you the required industry percentage. Then, run `calculate_harvest_impact` to see if your total loss exceeds that confirmed benchmark.

Using general yield calculators

✗ AVOID

A user uses a basic spreadsheet model that only tracks bags lost but ignores area size or market price variability.

✓ INSTEAD

This MCP is designed for precision. Use `calculate_harvest_impact` because it factors in field acreage and the specific dollar value of your grain, providing a total financial loss figure.

Relying on anecdotal advice

✗ AVOID

A farm manager hears from an older farmer that 'a 5% loss is fine.' They trust this without checking current industry rules.

✓ INSTEAD

Don't take anecdotes. First, use `retrieve_crop_benchmark` to get the official maximum allowable loss rate for your specific crop type. Use that number as your absolute ceiling.

The Right Fit

Use this MCP if your primary need is quantifying physical and financial grain losses following a harvest. If you have field acreage, current yield data, local market prices, and the crop type, these tools give you an immediate, quantitative answer on performance.

You use it when you need to know *how much* money was lost or *if* the loss percentage meets industry standards.

Don't use this if your problem is related to soil nutrient deficiencies (you need a separate Soil Analysis MCP) or optimizing planting patterns (that requires an Agronomy Planning tool). This MCP only measures and reports on losses that already happened during the harvest. If you just want general yield predictions without factoring in specific loss mechanisms, a simpler modeling tool might suffice.

The Yield Loss Spreadsheet Headache

Today, assessing harvest losses means jumping between multiple tabs: one for the field's total area, another to manually cross-reference the crop type against a printed industry standard guide, and yet a third spreadsheet where you plug in pre-harvest loss percentages, platform loss rates, and threshing percentages. You spend hours copying numbers, checking formulas, and finally compiling a report that feels more like an art project than a data analysis.

With this MCP, the whole process collapses into three quick steps. Input your parameters—the crop, the area, the losses—and let your agent handle the rest. What you get back is one clear, definitive number: the total financial loss and whether it's acceptable by industry standards.

Calculate Harvest Impact

You no longer need to manually calculate the cumulative effect of losses. The system automatically figures out the physical deficit in bags across your entire operation, then multiplies that by the market price, giving you a single dollar figure for the total financial hit.

The difference is simple: instead of producing a complex sheet of inputs and assumptions, you walk away with one definitive number—your actual net loss. It’s precise, verifiable data for any negotiation.

Harvest Loss Calculator: 3 Tools

These tools allow you to assess, calculate, and compare your crop losses using professional benchmarks and detailed financial modeling.

#	TOOL	DESCRIPTION
01	`retrieve_crop_benchmark`	Looks up the accepted industry maximum loss rate for a specific crop type.
02	`calculate_harvest_impact`	Calculates total physical and financial grain losses based on harvesting inefficiencies across a field's acreage.
03	`assess_harvest_efficiency`	Compares your actual yield losses to established industry limits, telling you if performance is acceptable or critical.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U Calculate the impact of a harvest where I expect 60 bags/ha in a 100-hectare field, with 2% pre-harvest loss, 3% platform loss, and 2% threshing loss, at $25 per bag.

The total loss is 7% (7 bags/ha). Across 100 hectares, you lost 700 bags, resulting in a financial loss of $17,500.

U What is the maximum acceptable loss for Soybeans?

The industry standard maximum allowable loss for Soybeans is 2%.

U Is a 5% total loss in Corn considered efficient?

No, a 5% loss for Corn is currently rated as 'Critical' because it exceeds the industry benchmark.

Frequently Asked Questions

01 **How does the Harvest Loss Calculator MCP work?**

This MCP calculates total physical and financial grain losses by accepting input on field area, crop type, and various loss percentages. It then compares that result against industry standards to give you a definitive performance grade.

02 **What kind of data does retrieve_crop_benchmark use?**

It uses established agricultural metrics to pull the maximum acceptable percentage of yield loss for specific grains, ensuring your assessment is based on current industry best practices.

03 **Can I calculate losses for multiple crops using Harvest Loss Calculator MCP?**

Yes. You can run separate assessments for different crops by simply changing the crop type and running `retrieve_crop_benchmark` for each one before calculating its impact.

04 **Does assess_harvest_efficiency only look at yield percentage?**

No, it evaluates performance against acceptable industry limits. It flags issues when your measured loss exceeds the benchmark, telling you if the efficiency is 'Critical' or within tolerance.

05 **Do I need to know my market price for calculate_harvest_impact?**

Yes, the financial impact calculation requires the current market price per bag so it can convert physical losses (bags) into a measurable dollar amount ($).

06 **How can I calculate the total financial loss from my harvest?**

Use the `calculate_harvest_impact` tool. Provide your expected yield per hectare, field area, various loss percentages (pre-harvest, platform, and threshing), and the current market price per bag.

07 **How do I know if my harvest efficiency is acceptable?**

You can use the `assess_harvest_efficiency` tool by providing your crop type and the actual total loss percentage you calculated. It will compare your results against industry benchmarks.

08 **Where can I find the standard allowable loss for a specific crop?**

Use the `retrieve_crop_benchmark` tool and specify the crop type (e.g., Wheat, Corn, or Soybeans) to get the maximum allowable loss percentage.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"harvest-loss-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Harvest Loss Calculator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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DOCUMENT INFORMATION

Generated	June 2026
MCP Server	Harvest Loss Calculator MCP
Server ID	`019efc55-4a0f-7267-9100-30f60efa3c09`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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