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A Decision Framework for Evaluating Alternative Feed Sources

Looking Beyond Feed Cost to Make Better Whole-Farm Decisions

A practical guide for dairy producers and service providers

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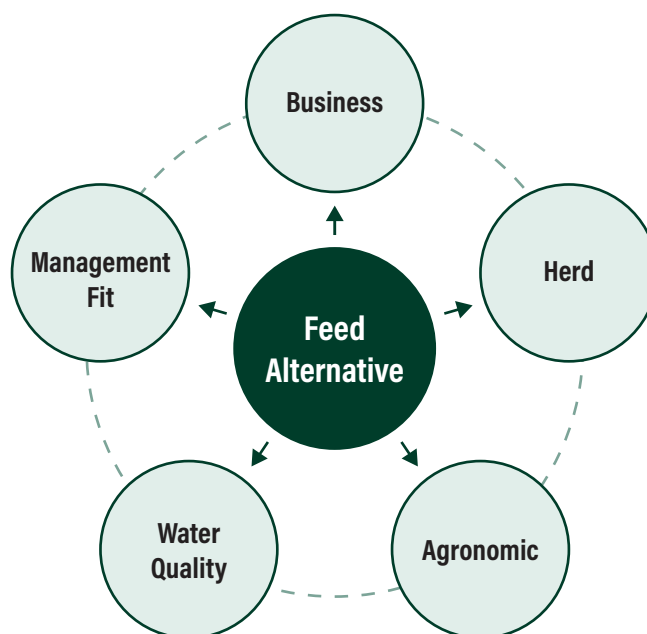
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Why Feed Decisions Are Different

The lowest-cost feed is not always the lowest-cost decision on a farm. While the purchase price or production cost of a feed may look attractive, it can also affect labor, crop yield, herd performance, and day-to-day management. Whether considering byproduct feeds, cover crop forage, or homegrown grain, these alternatives should be evaluated on more than cost alone. Evaluating these decisions holistically and accounting for all potential factors can help farms understand the full range of costs, benefits, and tradeoffs before adopting a new feed alternative.

This framework breaks the decision-making process into five categories: business, herd health, agronomic, water quality, and management fit. Each category highlights different management considerations that may influence the overall value of a feed. The goal is not to find an option that excels in every category, but to carefully weigh all the tradeoffs before making a decision.



Evaluate every alternative through all five lenses — together, not one at a time

Step 1: Define the Decision

This framework is intended to help compare feed alternative impacts across the entire farm. When evaluating whether an alternative feed is the right decision for the farm, work through each of the five categories and consider how the proposed change would affect the farm.

As you work through each category, ask:

- ☐ What changes will the farm need to implement if this feed is adopted?
- ☐ What are the potential benefits?
- ☐ What are the potential costs or risks?
- ☐ Are there additional management or infrastructure requirements?

Extension Tip

Be specific. "Harvest cover crop before planting corn silage" is easier to evaluate than "Increase forage tons."

Current Feed:

Proposed Feed:

Goal:

Expected Benefits:

Potential Concerns:

Step 2: Evaluate Each Category

Business

The business category looks beyond the feed's cost per ton to consider the overall financial impact on the operation. A feed that costs less to produce or purchase may still increase labor, equipment costs, or financial risk. In contrast, a more expensive feed option could reduce purchased feed costs or improve operational efficiency.

Questions to consider

- What is the total cost of producing or purchasing the feed?
- How does the cost compare with the feed it replaces?
- Will it reduce purchases of other feed or feed additives?
- Will it reduce purchased feed costs enough to offset any additional expenses?
- Will it increase machinery use, fuel, or maintenance costs?
- Are additional storage facilities needed?
- Does it require additional labor or skilled labor?
- Will existing equipment meet the needs, or is new or specialized equipment needed?
- How will it affect cash flow throughout the year?
- What financial risks exist if yield, feed quality, or availability vary?

Supporting Documents

- Farm financial records
- Quotes for equipment or purchased feed
- Previous experience or peer experience

Notes:

Potential Tradeoffs

Benefit	Challenge
Lower feed cost	More labor
Reduced purchased feed expenses	Investment in machinery or infrastructure needed
Improved profitability	Greater year-to-year production risk

Producer Tip

Don't compare feeds using different units. For example, compare the cost of a purchased feed on a cost per ton and compare new crops on a cost per acre basis.

Herd Health

The herd health category evaluates how the feed fits into the ration and whether it supports animal health and performance goals.

Questions to consider

- ☛ What role will this feed play in the ration?
- ☛ Does the feed consistently meet nutritional goals?
- ☛ Will quality vary from load to load or year to year?
- ☛ Which purchased feeds will it replace?
- ☛ How will milk production or components be impacted?
- ☛ How will it affect animal health or dry matter intake?
- ☛ Does my nutritionist have experience balancing rations with this feed?

Supporting Documents

- Farm Records, including production and animal health data, feed bills
- Forage or feed analyses
- Quotes
- Proposed diets with new feed incorporated

Notes:

Potential Tradeoffs

Benefit	Challenge
Reduced purchased grain	Increased ration balancing needs
Higher forage quality	More variability between harvests

Agronomic

The agronomic category considers how producing or harvesting the feed affects crop production and long-term soil health and productivity.

Questions to consider

- ☛ How will crop yield be affected?
- ☛ Do I have enough acres?
- ☛ Does the new feed fit within the existing crop rotation?
- ☛ Will planting or harvest timing interfere with other field work?
- ☛ Does it change fertilizer needs?
- ☛ Could it improve soil health over time?
- ☛ Could extreme weather events, such as flooding or drought, affect crop yield and performance?

Supporting documents

- Historic crop and yield data by field
- Soil tests
- Nutrient management plan

Notes:

Potential Tradeoffs

Benefit	Challenge
Additional forage production	Delayed planting of the following crop
Improved soil health	Reduced yield

Water Quality

Water quality considerations help identify how the feed alternative affects nutrient management and the risk of nutrient or soil loss.

Questions to consider

- ☛ Does it reduce or increase soil erosion or water runoff risk?
- ☛ Could the new crop or practice affect nutrient runoff during wet periods?
- ☛ Does it improve nutrient utilization or availability?

Supporting Documents

- Historic weather data, including rainfall and extreme weather events
- Soil tests
- Previous experience

Notes:

Potential Tradeoffs

Benefit	Challenge
Improved soil health	Reduced manure application windows
Reduced erosion	Increased management complexity

Management Fit

Even when a feed makes economic and agronomic sense, it still needs to work with the farm's labor, equipment, and management capacity.

Can Our Farm Realistically Manage This?

Equipment	Do we have the equipment needed?	☐ Yes ☐ No
Labor	Do we have adequate labor?	☐ Yes ☐ No
Storage	Is sufficient feed storage available?	☐ Yes ☐ No
Knowledge	Do we have the knowledge or technical support needed?	☐ Yes ☐ No
Timing	Can it be implemented consistently, even during busy seasons?	☐ Yes ☐ No

If you answered "No" to more than one question, identify what would need to change before implementing the practice.

Notes:

Worked Example: Harvesting Cereal Rye Before Corn Silage

The scenario, numbers, and quotes below are an example — built to show how the framework works, not to predict a result. Swap in your own farm's costs, yields, and quotes before using this with a real decision.

The Scenario

Green and Gold Dairy, a 250-cow herd in the Champlain Valley, currently no-till drills cereal rye after corn silage harvest each fall and terminates it with herbicide the following spring as a cover crop only. They are considering harvesting the rye as baleage at boot stage in early-to-mid May, then planting corn silage on the same acres, to add additional forage inventory.

Step 1: Define the Decision

Current System	Cereal rye is drilled after corn silage harvest each fall and terminated with herbicide the following spring as a cover crop only; no forage is harvested.
Proposed System	Harvest the rye as baleage at boot stage in early-to-mid May, then plant corn silage on the same acres.
Goal	Add additional home-grown forage inventory that reduces purchased haylage while keeping the soil-cover benefits of the existing rye cover crop.
Expected Benefits	Additional home-grown forage tonnage; reduced purchased haylage; continued erosion protection through most of spring.
Potential Concerns	Delayed corn planting; added spring labor and equipment time; variable forage quality depending on harvest timing.

Working Through the Five Categories

Business

What is the total cost of producing or purchasing the feed?	The rye is already planted as a cover crop, so the only new cost is harvest. Green and Gold already owns a mower and rake, but will hire baling and wrapping.
How does its cost compare with the feed it will replace?	At an estimated 1.5–2.0 tons dry matter/acre, that is roughly \$60–75/ton DM, close to, or slightly higher, than the \$55–65/ton the farm currently pays for purchased haylage.
Will existing equipment meet the needs, or are new investments required?	The farm owns a mower and rake; baling and wrapping would be custom-hired the first year rather than purchased to reduce input costs.

Tradeoff: Lower cost per ton than purchased hay, but a new spring cash expense for custom-hire harvest.

Herd Health

What role will this feed play in the ration?	Since trialing on 15 acres, this feed will be incorporated into heifer rations. Depending on quality and success, could be incorporated into lactating cow diet in the future.
Will quality vary from year to year?	Yes — a wet spring that delays harvest past boot stage lowers both tonnage and forage quality.
Does my nutritionist have experience balancing rations with this feed?	Yes — the farm's nutritionist has balanced rye baleage into rations for other clients.

Tradeoff: Reduces purchased hay costs, but requires forage testing and diet changes to keep the ration balanced.

Agronomic

Will planting or harvest timing interfere with other field work?	Yes — harvest falls in the same 7–10 day window the farm would otherwise use to plant corn.
Does the new feed fit within the existing crop rotation?	Yes — it is an add-on to the farm's existing corn silage / cereal rye rotation, not a new crop.
Does it change fertilizer or lime requirements?	A modest starter nitrogen adjustment on the following corn, since less rye residue returns to the soil.

Tradeoff: Extra forage tonnage, but corn planting shifts roughly a week later than the current cover-crop-only system.

Water Quality

Does it reduce or increase soil erosion or water runoff risk?	Erosion protection is similar to the current system — the rye still remains on the field through most of the spring.
Could the new crop or practice affect nutrient runoff during wet periods?	Harvesting removes the standing biomass (and the nutrients in it) rather than letting it break down in the field, slightly reducing nutrient recycling.
Does it improve nutrient utilization or availability?	It opens a manure application window right after cutting and before corn planting that the current system does not allow.

Tradeoff: Similar erosion protection to today, but a new manure-application window opens while some nutrient-recycling benefit is lost.

Reality Check: Can Green and Gold Farm Actually Do This?

Equipment	Do we have the equipment needed?	☒ Yes ☐ No
Labor	Do we have adequate labor?	☐ Yes ☒ No
Storage	Is sufficient feed storage available?	☒ Yes ☐ No
Knowledge	Do we have the knowledge or technical support needed?	☒ Yes ☐ No
Timing	Can it be implemented consistently, even during busy seasons?	☐ Yes ☒ No

Because labor and timing both came back “No,” Green and Gold decided to custom-hire the baling and wrapping for the first year, so their own crew and equipment stay focused on corn planting. If the practice works well, they will revisit purchasing equipment to do the harvest themselves.

Pulling It Together

How Confident Are We in This Information?

Business	★★★★☆☆
Herd	★★★★★☆☆
Agronomic	★★★★★☆☆
Water Quality	★★★★☆☆☆
Management	★★★☆☆☆☆

Partial Budget (per acre, 15-acre trial)

Added benefits (value of rye forage produced)	TBD
Reduced costs (purchased haylage avoided, ~1.75 tons/acre × \$60/ton)	\$105
Added costs (custom baling and wrapping, starter N)	\$130
Reduced benefits (less soil nutrient recycling)	\$15
Net (purchased haylage offset only)	~ -\$40

$$\text{Net} = (\text{Added benefits} + \text{Reduced costs}) - (\text{Added costs} + \text{Reduced benefits}) = (\$0 + \$105) - (\$130 + \$15) = \$-40/\text{acre}$$

The grain-offset benefit is left as “TBD” on purpose — putting a real number on it requires the farm’s nutritionist to test the harvested forage and rework the milking-string ration, which is exactly the kind of evidence this worksheet’s checkboxes are meant to prompt. If that testing shows the rye is good enough to reduce purchased grain, the actual net could turn positive; the -\$40/acre above is the conservative, haylage-only floor.

Bottom Line

Because this rye baleage would displace haylage the farm already purchases each year, -\$40/acre is a conservative estimate, not the full picture. It does not consider a possible reduction in purchased grain if the forage tests well enough for the lactating ration. That is a possibility but unquantified until the forage is tested and the ration is adjusted, which is exactly why Herd confidence is rated medium rather than high.

Because the 15 acres of rye baleage will not cover a full year of haylage needs either way, and because quality — not just tonnage — determines whether the grain offset materializes, Green and Gold dairy plans to start with one field, get the baleage tested before deciding where it goes in the ration, and track actual harvest date, forage test results, and any grain adjustment against these expectations before deciding whether to expand (see Before You Decide, later in this guide).

Step 3. Putting It All Together

Is This the Right Fit for My Farm?

Rate each category, not on how well the alternative performs, but how confident you are in your ability to implement this practice.

Your Farm

Business	☆☆☆☆☆
Herd	☆☆☆☆☆
Agronomic	☆☆☆☆☆
Water Quality	☆☆☆☆☆
Management	☆☆☆☆☆

Partial Budget

Added benefits	\$
Reduced costs	\$
Added costs	\$
Reduced benefits	\$
Net	\$

$$\text{Net} = (\text{Added benefits} + \text{Reduced costs}) - (\text{Added costs} + \text{Reduced benefits})$$

Before You Decide

Checklist

- ☐ Compared alternatives
- ☐ Looked at more than feed price
- ☐ Reviewed with nutritionist
- ☐ Reviewed with crop advisor
- ☐ Considered weather risk
- ☐ Evaluated labor
- ☐ Looked at storage
- ☐ Planned monitoring

Extension Recommendation

Try the practice on limited acreage before expanding. Compare actual results against your original expectations:

- ✓ Yield
- ✓ Feed quality
- ✓ Cost
- ✓ Labor
- ✓ Animal performance

Things to Remember

- Yield drives economics.
- Timing is key for feed quality.
- Consider your current labor and management capacity.
- Start small to limit risk.

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