

When The Timing Isn't Right: Virtual Fence Pilot on a Labor-Limited Operation

Ellen and Mark Doyle* operate a 150-cow commercial cow-calf ranch on approximately 1,400 acres of irrigated and sub-irrigated meadow and foothill pasture. Their grazing system includes five permanent pasture units supported by reliable water developments and functional cross-fencing. Figure 1.

The Doyles have been discussing ways to improve management flexibility on several home meadows used for grazing after first cutting of hay. One option under consideration is virtual fencing (VF), which could potentially create temporary 40 acre grazing areas within their 160 acre home hay meadow, without constructing additional permanent fence. After attending a producer demonstration and speaking with other operators, the Doyles began considering whether a small virtual fencing pilot might be worthwhile.

Their question was straightforward:
Would a small virtual fencing pilot improve grazing management enough to justify the additional time, cost, and management attention required this season?

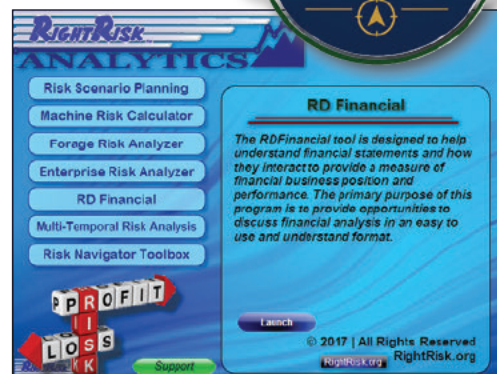
Current Situation

The Doyles are not facing an immediate grazing crisis. Their existing system already provides:

- Reliable livestock containment
- Functional rotational grazing
- Adequate water distribution
- Acceptable post-hay grazing utilization

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While additional flexibility would be useful, the current system generally performs as intended.

The proposed virtual fencing pilot would involve approximately twenty cow-calf pairs on a forty-acre hay meadow for a portion of the summer grazing season. Initially, the Doyles viewed the idea positively. The pilot would be small, reversible, and limited to a pasture already protected by physical fence. If the

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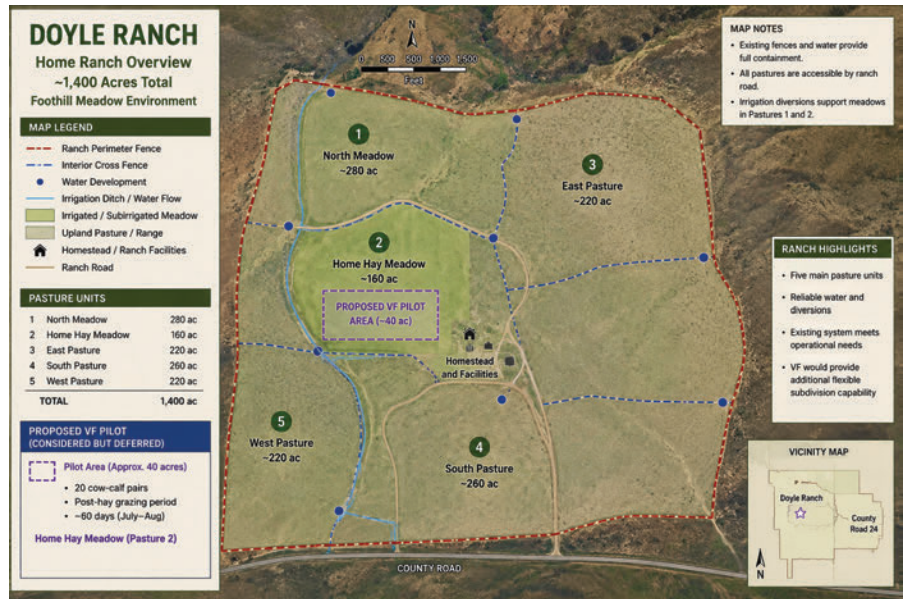
technology worked well, it might provide useful information for future grazing improvements. Before proceeding, however, they completed a *Risk Mitigation Filter* to better understand the decision, Table 1.

Status Quo - No Change

Status quo is the baseline. Where the Doyles continue to manage post-hay grazing on their home meadows exactly as they do now, using their existing cross-fencing to control livestock movement, without adding any virtual fencing technology or conducting any pilot

Problem Fit: Conditional (C) - The existing system does address the stated management objective, but only partially. The Doyles can manage post-hay grazing now, so the problem is not unaddressed. The fit is conditional because the current approach is adequate, not optimal. There is real but limited room for improvement.

Figure 1. Doyle Ranch Layout



Risk Source: Human (H) / Production (P) - The status quo's dominant risk is human: the ranch is already operating near its labor ceiling, and that constraint does not go away by doing nothing. Production risk is secondary because maintaining the current approach means continuing to accept whatever limitations in grazing flexibility and utilization the existing fencing layout imposes.

Control Type: Accept (Ac) - Staying with the status quo is an acceptance posture. The Doyles are not actively reducing, avoiding, or transferring risk. They are acknowledging that the current system has known limitations and tolerating them. That is a legitimate choice, but it should be named as such rather than treated as a neutral default.

Feasibility: Infrastructure - Yes (Y), Labor - Yes (Y), Legal - Yes (Y), Animal Management - Yes (Y), Contingency - Yes (Y) - No barriers exist to continuing the status quo. The infrastructure is in place, labor requirements are familiar and manageable, there are no legal complications, the cattle are already trained to existing fences, and contingency plans are routine. Feasibility is straightforward when nothing is changing.

Up-Front Cost: Low (L) - Staying with the current system requires no new capital outlay. No collars, no base station, no vendor contract, no training time investment.

Recurring Cost: Low (L) - The ongoing costs of the existing fencing and grazing system are known and already budgeted. There are no new subscription fees or technology-related recurring expenses.

Failure Consequence: Low (L) - If the status quo continues to perform as it has, the consequences of that choice are minor. The operation does not face an imminent grazing crisis. Pastures are not being badly underutilized or damaged. The cost of inaction is real but small in the near term.

Next Step: Filter Sufficient (Filter OK) - No deeper analysis is needed to continue with the status quo. The filter is sufficient to support that choice. There is nothing about the status quo that requires escalation to the *Risk Scenario Planning (RSP)* tool or *Multi-Temporal Risk Analyzer (MTRA)* or any other instrument, Table 2.

Table 1. Risk Mitigation Filter Entries for Status Quo and Virtual Fence Pilot on Hay Meadow

Alternative (up to 5 named)	Problem Fit S/M/C/P	Risk Source M•P•I•H•F underline primary	Control Type Av•RP•RC•Tr•Ca•Ac underline primary	Feasibility I•L•Lg•A•C underline primary	Up-front Cost L/M/H/C	Recurring Cost L/M/H/C	Failure Consequence L/M/H	Next Step tool/specialist or "filter ok"
Status quo (no change)	C	<u>H</u> P	Ac	YYYYY	L	L	L	Filter OK
VF pilot on hay meadow	M	<u>H</u> P	Ac	YYYYY	M	M	L	Filter OK

Table 2. Risk Mitigation Filter - Routing and Key Uncertainties

Tool routing (check one or more):

☒ Filter sufficient
 ☐ + RSP
 ☐ + MTRA
 ☐ + ERA
 ☐ + FRA
 ☐ + RDFinancial
 ☐ + Risk Navigator

Key uncertainties to carry into the deeper tool:

Information value of a small-scale VF pilot. Management time required for pilot implementation and monitoring. Magnitude of grazing-management benefits achievable on home meadows. Future labor constraints and their effect on VF value.

Virtual Fencing Pilot on Home Hay Meadow:

Under the pilot the Doyles propose to manage post-hay grazing on a portion (40 acres) of their home hay meadows using virtual fencing technology via a small virtual fencing pilot.

Problem Fit: Moderate (M) - Virtual fencing appears capable of addressing the management objective of creating temporary grazing boundaries. However, the problem being addressed is not urgent and does not currently limit ranch performance.

Primary Risk Source: Human Risk (H) - The Doyles concluded that labor availability and management capacity were the primary sources of uncertainty. The pilot would occur during the busiest portion of the year, when irrigation management, haying activities, livestock movements, equipment maintenance, and family obligations already compete for limited time. The central question became whether they had sufficient management capacity to properly evaluate a new technology during an already demanding season.

Secondary Risk Source: Production Risk (P) - The Doyles were also uncertain whether a small pilot would generate enough information to answer larger questions about future grazing management, labor savings, and operational flexibility.

Risk Control Type: Accept (Ac) - The primary management response was to acknowledge the uncertainty and postpone action until conditions became more favorable. The Doyles were not attempting to eliminate or transfer risk. Instead, they accepted that the decision could reasonably wait without creating meaningful harm to the operation.

Feasibility Review: Infrastructure - Yes (Y); Labor - Yes (Y); Legal - Yes (Y); Animal Management - Yes (Y); Contingency - Yes (Y) - The Doyles found no major barriers to implementation. The issue was not feasibility. The issue was whether implementation represented the best use of limited management attention at this time.

Up-front Cost: Moderate (M) - The pilot would require a manageable but meaningful enough to warrant consideration for a small pilot.

Recurring Cost: Moderate (M) - Subscription and ongoing management costs appeared reasonable at pilot scale but remained uncertain enough to warrant consideration.

Failure Consequence: Low (L) - The proposed pilot pasture was already enclosed by conventional fence. If the virtual boundary failed to function as expected, livestock would remain physically contained. As a result, the consequences of failure were considered relatively minor.

Next Step: Filter Sufficient (Filter OK) - The Doyles concluded that additional analysis would not materially improve the decision. The proposed pilot:

- Involved limited financial exposure
- Affected only a small portion of the ranch
- Could be implemented later if desired
- Carried low failure consequences
- Did not require a major capital commitment

Because the primary concern involved management capacity rather than economic uncertainty, deeper analysis through the RSP tool or MTRA are not expected to provide substantially better guidance. The uncertainties noted were recorded for future reassessment but were not large enough to justify additional analysis at this time. The *Risk Mitigation Filter* was sufficient for the decision, Table 2.

Decision Outcome - DEFER

After reviewing the filter results, the Doyles chose to defer the virtual fencing pilot. Importantly, this decision was not a rejection of virtual fencing. The Doyles believed the technology might eventually provide value on their operation. However, they also

recognized that conducting a meaningful pilot would require time, attention, monitoring, and learning during a period when those resources were already stretched thin.

Rather than conduct a pilot that might not receive adequate attention, they decided to postpone the evaluation. The decision reflected management priorities rather than technological limitations.

What Will Be Monitored?

Although no pilot will be conducted this year, the Doyles identified several items they intend to monitor before revisiting the decision:

- Labor demands associated with existing grazing management
- Time required for pasture moves and temporary fencing activities
- Grazing utilization patterns on post-hay meadows
- Areas where additional grazing flexibility would create measurable value
- Experiences reported by neighboring producers using virtual fencing

These observations will help determine whether the management benefits become large enough to justify a future pilot.

Case Summary

The Doyles completed the *Risk Mitigation Filter* and identified human risk, specifically management capacity and competing labor demands, as the dominant concern. The filter showed that the proposed pilot was technically feasible and carried relatively low failure consequences. However, the expected

benefits were not large enough to justify diverting attention from higher-priority activities during the current season.

Because the limiting factor was management capacity rather than financial uncertainty or technical feasibility, the *Risk Mitigation Filter* alone provided sufficient information to support a decision. The result was Defer. In this case, the value of the decision process was not that it led to action. The value was that it helped the Doyles recognize that postponing the decision was a reasonable and defensible outcome.

Further Analysis

The *Risk Mitigation Filter* was sufficient here because the limiting factor was management capacity, not economic or technical uncertainty. That can change.

If the Doyles were comparing virtual fencing against a capital investment in permanent interior fencing, the *Risk Scenario Planning* (RSP) tool would provide more structured guidance on that trade off. If labor constraints ease and a pilot becomes realistic, the RSP Tool could help evaluate the range of likely outcomes before committing. If the operation expands and grazing flexibility becomes a binding production constraint, the *Multi-Temporal Risk Analyzer* (MTRA) would be appropriate for a longer-horizon capital evaluation.

For More Information

Visit VirtualFence.RightRisk.org for more details on how the *Risk Mitigation Filter* can assist in risk management planning for your operation. RightRisk.org offers a wide range of budgeting tools, courses, producer profiles, and other resources designed to help producers understand and manage risk, ensuring their operations thrive.



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