

Calibration Case B: the minimal case

FDMS v1.2 adopted edition · Case file v1.0.1 (6 August 2026) · summary published under the FDMS free core

Why this case exists

A recurring and fair objection to any conformance standard is that it demands everything of everyone: that a framework built to govern a complex, loan-financed smallholder transition will bury a simple decision in obligations it does not need. The Farm Decision Modelling Standard answers that objection with machinery rather than assurance. Its twenty-nine binary triggers determine which Conditional elements activate for a given model, so the standard is supposed to scale down on its own. Case B is the test of that claim: a deliberately minimal, real-scale commercial decision, built to the standard, with every trigger answered and the activation burden recorded. It also answers the public comment (disposition CD-15) that asked for exactly such a demonstration.

The case

A 300-hectare maize-specialist commercial operation in the summer rainfall region must decide whether to raise nitrogen top-dressing from 120 to 150 kg N per hectare, on the evidence of its own on-farm strip trials (2023 to 2025) and published response guidance. The decision is bounded, reversible season by season, financed from operating cash, and touches no new resource, enterprise, channel or institution. It is the kind of decision farm managers take every year without ceremony, which is precisely why it is the right minimal case.

The calibration result

All twenty-nine triggers were answered with a recorded evidentiary basis, as the standard requires; unanswered triggers are a conformance failure. Four of twenty-nine activated (14 per cent): the productivity-claim and input-response triggers (TE4.1, TE4.3), the nutrient-balance trigger (TE14.2, answered with the three-line minimum analysis the standard permits where materiality is low), and the fuel-levy trigger (TE14.4, because the extra spreading pass burns levied diesel). Against this, the comprehensive calibration case, a two-hectare Eastern Cape household converting to irrigated contract vegetables, activated twenty-five of twenty-nine (86 per cent). The separation, a factor of six in activation burden between the maximal and minimal case, is the calibration evidence: proportionality is delivered by the trigger machinery, not by exhortation. The full coding of both cases, with the recorded basis for every answer, is in the Signed Calibration Register v1.0 published alongside this summary.

Measure	Case A (complex)	Case B (minimal)
Decision	Convert 0.5 ha to drip-irrigated, double-cropped, loan-financed, contract-marketed cabbage	Raise N top-dressing from 120 to 150 kg N/ha on 300 ha maize
Triggers activated	25 of 29 (86%)	4 of 29 (14%)
Formulas in artefact	386	34
QA checks	All 13 automated checks pass	All checks pass
Build effort	Full reference workbook, built over the programme	One afternoon of work

The defect the standard caught, disclosed

Case B also produced the programme's most important result, and it is not a flattering one. The first issue of the case file recorded an extra-fertiliser cost of R450 per hectare, with a recorded source reading "LAN quote Aug 2026". The register's source-verification discipline (element E15) flagged the entry: at published mid-2026 prices (SA Grain, 6 July 2026: LAN R19,125 per tonne, urea R21,009 per tonne), 30 kg of nitrogen cannot be bought for R450 per hectare by any route; the recorded figure was impossible by a factor of three to four and a half, and the quoted source could not be produced. The standard had caught its own author.

The defect was not repaired silently. It is logged as defect D1 in the Signed Calibration Register, with the arithmetic that exposed it, and the case file was reissued as v1.0.1 with the cost repriced on the urea basis (R1,450 per hectare expected, source verified against the published SA Grain report). A second defect, D2, an optimistic price assumption against the December 2026 white maize futures curve, was caught and corrected the same way. At verified inputs the case's comfortable yes becomes a knife-edge yes: expected incremental margin of about R27 per hectare, marginal return per rand of 1.02, break-even response of 0.442 tonnes per hectare against an expected response of 0.45. Via LAN rather than urea the expected case reverses outright, so the nitrogen source itself becomes part of the decision. None of the twenty-nine trigger answers changed; the calibration conclusion survived its own correction.

What this case demonstrates

Three things, each load-bearing for the standard's claims. First, a conditional standard scales down: a real commercial decision was carried to full conformance in thirty-four formulas and an afternoon, with twenty-five of twenty-nine obligations correctly silent. Second, the register's recorded-basis discipline does real work: it is the mechanism that exposed D1, and a defect of that kind, an impossible input cost carried on a source that does not exist, is exactly the class of error that thirty years of spreadsheet research says survives in appraisals that move land, credit and public money. Third, correction under change control is credible in a way silent repair is not: the defective figure, the arithmetic against it, the reissue and the changed conclusion are all on the public record, in a register signed before the error was found.

Artefacts and status

The artefact of record for this case is FDMS_Calibration_Case_B_Simple.xlsx v1.0.1 (11 tabs: decision register, assumption and source register, baseline and counterfactual, financials, risk, scenarios, sensitivity, trigger record, QA record, dashboard). Under the FDMS Commercial Policy the case working file is distributed as a paid product; this summary, the Signed Calibration Register v1.0 and the standard itself are free and citable. The register is change-controlled with the standard: the v1.3 amendment cycle closing 1 February 2027 requires both calibration cases to be re-run against the amended text before it enters force, with results published whatever they are.

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