

SUPPLEMENTARY MATERIAL

S1. Interview guide — growers in Rîșca commune

The instrument used in the field, reproduced in full and translated from Romanian. The numbered questions are always asked; the probes, marked ►, are used only if the topic does not come up in the spontaneous answer. Block numbering is that of the instrument.

Block 1 — profile of the grower and the farm

1. How long have you been growing potatoes, and on how much land do you grow them now? Which cultivars?
2. Is it your main crop, or do you grow others as well? Do you produce only for your own use, or also for the market?
3. How did potato production 20–30 years ago compare with today, and what has changed most? ► Have the cultivars you use changed? Why did you change them? ► Have you changed the field operations or the planting and harvest dates?
4. How would you describe the climate of recent years compared with how you knew it in the past? ► Are the summers different? The winters? ► Does the rain come differently from before?

Block 3 — memorable extreme events

5. Which was the most difficult year for your potato crop, and which the best? What happened then? ► Was it drought, flooding, late frost, hail? ► At what time of year do you feel the changes from the past most?
6. Have diseases or pests appeared on your potatoes that you did not have before? ► Since when have you noticed them? ► How do you deal with them?

Block 4 — production factors: ranking and weighting

Recommended transition before item 7: “Now that you have told us how things have changed, I would like to ask you more generally, if you had to sum it up...”

7. In your view, what are the three most important factors that make the difference between a good potato harvest and a poor one? [open item; no probes]
8. If you had to put them in order, which matters most: the soil, the weather, the lie of the land (slope, aspect), access to the market, labour? ► Which is second in importance? ► Which is third?
9. What has changed most over the last 20 years in terms of these factors? ► Has the weather changed more, or access to the market? ► Is labour what it used to be?

Block 5 — adaptation strategies

10. What have you changed in your practice to cope with these changes? ▶ Have you changed the planting period? ▶ Have you tried new cultivars or organic potatoes? ▶ Have you abandoned any land because of production problems?

11. How do you manage in years of prolonged drought? ▶ Do you water? Where do you bring the water from? ▶ Do you change the planting date?

Block 6 — the narrative geography of the crop

12. Which are your best parcels? Where are they, and what are they like? ▶ What is the place called (the place name)? ▶ Is it flat or sloping? Facing the sun or in the shade? ▶ Near water or far from it?

13. Are there places in Rîșca where potatoes are no longer grown although they once were? Where, and why? ▶ What is that place called? ▶ What is it like — the soil, the slope, the aspect, the water? ▶ Since when have they not been grown there?

14. Are there places where potatoes are grown although something else might be more suitable? Where, and why? ▶ What is the place called? ▶ Why do people keep growing them there?

Block 7 — local identity, market, future

15. What does the Rîșca potato mean to you? ▶ Is it different from potatoes from other areas? ▶ In what way?

16. Where do you sell your produce, and has anything changed in selling over recent years? ▶ At the market in Cluj, to middlemen, to processors, directly to consumers? ▶ How has the price developed?

17. Do the young people in the family carry on growing potatoes? [sensitive question; no probes]

18. How do you see the future of potato growing in Rîșca in 10–20 years? ▶ Will the tradition continue? ▶ What would be needed for the tradition to be kept?

Final step — mapping

“Finally, please help us locate on this map the parcels you have talked about. Could you mark where you grow potatoes now and, if you wish, also the land you have abandoned?”

Instructions for use

— Audio recording with the respondent’s explicit consent, requested at the start of the interview.

— The blocks are not followed rigidly: if the respondent anticipates questions from later blocks, the interviewer follows the respondent’s thread, and skipped questions are returned to only if the topic has not been covered sufficiently.

- Probes are a reserve, not an obligation, and are not ticked off mechanically.
- Place names are recorded exactly, with the local pronunciation, as they are needed to georeference the narratives.
- Question 7 is asked without probes: the unprompted answer is the only one used for the ranking in Section 4.5.
- Mapping is done at the end, not during the interview, so as not to interrupt the narrative register.

S2. Interview guide — food markets

A 10–15 minute interview at the stall, during trading hours; translated from Romanian. The item codes in this instrument (S1, S2, A1–A8, B1–B4, C1–C4) belong to the guide and are unrelated to the numbering of the supplementary sections.

Opening and consent

“Good morning, we are doing research on potato growing in Rîșca commune, at the Faculty of Geography. Ten minutes of conversation would help us. Do you agree to our recording, to our using extracts from what you say in a scientific article without your name, and — if you have land — to our marking on a map the parcels you talk about? You can change your mind at any time.”

Screening — always asked

S1. Are these potatoes from your own production, or do you buy them from other growers?

S2. Where does the produce come from? From which villages?

The answer sets the category: A — grows in Rîșca; B — grows elsewhere; C — does not grow, resells; D — mixed. Respondents are not asked whether the produce is “really” from Rîșca: the question would be asked in public, at the respondent’s workplace, about a practice the respondent has reason not to admit. The prevalence of the label is documented with the observation sheet, not through the interview.

Categories A and D — grow in Rîșca

A1. How long have you been growing potatoes, and on how much land? Which cultivars?

A2. How did production 20–30 years ago compare with today, and what has changed most?

A3. Which was the hardest year for your crop? What happened then? ▶ Was it drought, late frost, cold spring rain, hail?

A4. In your view, what are the three most important factors that make the difference between a good harvest and a poor one? [open item; no probes]

A5. Which are your best parcels? Where are they, and what are they like? ▶ What is the place called? Flat or sloping? Facing the sun or in the shade? Near water?

A6. Mapping of the parcels from A5.

- A7. Do you have land you no longer crop? Why? [if the respondent has time]
A8. What have you changed in recent years in the way you grow potatoes? [if the respondent has time]

Categories B and C — do not grow in Rîșca

- B1. How does the produce reach you: directly from growers, from wholesale or through a middleman?
B2. From how many growers do you buy, and from which areas?
B3. At what time of year do you sell potatoes? What do you do when the local produce runs out?
B4. Do quality or price change from one season to the next? Why?

Common block — asked of everyone

- C1. What does the Rîșca potato mean to you? Is it different from potatoes from other areas, and in what way?
C2. How long have you been selling here, and has anything changed in selling over recent years? ▶ How has the price developed? The competition? The demand?
C3. How does the weather of recent years seem to you compared with how you knew it in the past?
C4. How do you see the future of the Rîșca potato in 10–20 years? ▶ What would be needed for the tradition to be kept?

For a respondent in category B or C, the answer to C3 documents a general perception, not a grower's observation. For each interview the market, date, screening category and duration are recorded; only respondents in categories A and D provide spatial data.

If the respondent refuses recording but agrees to talk, notes are taken immediately afterwards, not during the conversation, and the transcript is marked as reconstructed from notes. Place names are recorded with the local pronunciation if it differs from the map. Quantities sold are not asked for; they are noted only if the respondent offers them spontaneously.

S3. Scoring tables by indicator, for potato

The tables below are reproduced from the official land evaluation methodology (Florea et al., 1987) and give the value classes and potato coefficients for the six indicators in the model. We reproduce them so that the workflow described in Section 3 can be repeated and checked by a reader who does not have the methodology to hand: the 1987 edition is hard to obtain today and is published only in Romanian. Their content belongs to the cited source; we have not modified, added to or recalculated any coefficient. The coefficients are below unity and were used without transformation (Section 3.3.2). Two of the indicators are scored on different tables depending on a branching variable that is not itself a criterion: corrected precipitation by corrected temperature

class, and soil reaction by base saturation. The order of operations follows this dependence: the thermal correction is calculated before the precipitation correction.

Class	Limits (°C)	Code	Coefficient
T99	< -2.0	-03.0	0 (excluded)
T00	-1.9 ... 0.0	-01.0	0.1
T02	0.1 ... 2.0	01.0	0.1
T04	2.1 ... 4.0	03.0	0.2
T05	4.1 ... 5.0	04.5	0.6
T06	5.1 ... 6.0	05.5	0.7
T07	6.1 ... 7.0	06.5	0.9
T08	7.1 ... 8.0	07.5	1.0
T09	8.1 ... 9.0	08.5	1.0
T10	9.1 ... 10.0	09.5	0.9
T11	10.1 ... 11.0	10.5	0.9
T12	11.1 ... 12.0	11.5	0.9
T13	> 12.0	12.5	0.7

S3.1. Indicator 3C — corrected mean annual temperature

Class	Limits (mm)	Code	Coefficient
P01	≤ 300	0250	0.7
P02	301–400	0350	0.8
P03	401–450	0425	0.9
P04	451–500	0475	0.9
P05	501–550	0525	1.0
P06	551–600	0575	1.0
P07	601–700	0650	0.9
P08	701–800	0750	0.9
P09	801–1000	0900	0.8
P10	1001–1200	1100	0.7
P11	1201–1400	1300	0.3
P12	≥ 1401	1500	0.2

S3.2. Indicator 4C — corrected mean annual precipitation, in zones with corrected temperature ≤ 8.0 °C

Class	Limits (mm)	Code	Coefficient
P01	≤ 300	0250	0.6
P02	301–400	0350	0.7
P03	401–450	0425	0.7
P04	451–500	0475	0.8
P05	501–550	0525	0.9
P06	551–600	0575	1.0
P07	601–700	0650	0.9
P08	701–800	0750	0.8
P09	801–1000	0900	0.7

S3.3. Indicator 4C — corrected mean annual precipitation, in zones with corrected temperature 8.1–10.0 °C

Code	Limits (%)	Limits (degrees)	Coefficient
01	≤ 2.0	≤ 1°00'	1.0
03	2.1–5.0	1°01'–2°00'	1.0
07	5.1–10.0	2°01'–5°00'	0.9
12	10.1–15.0	5°01'–8°00'	0.7
17	15.1–20.0	8°01'–11°00'	0.5
22	20.0–25.0	11°01'–14°00'	0.2
30	25.1–35.0	14°01'–19°00'	0.1
42	35.1–50.0	19°01'–26°00'	0.1
75	50.1–100.0	26°01'–45°00'	0.1
99	> 100.0	> 45°00'	0.1

S3.4. Indicator 33 — slope

Code	Name	pH limits	Coef. at V < 53%	Coef. at V ≥ 53%
2.5	extremely acid	≤ 3.50	0.1	1.0
3.9	very strongly acid	3.6–4.3	0.6	1.0
4.7	strongly acid	4.4–5.0	0.8	1.0
5.2	moderately acid	5.1–5.4	0.9	1.0
5.6	moderately acid	5.5–5.8	0.9	1.0
6.1	slightly acid	5.9–6.4	1.0	1.0
6.6	slightly acid	6.5–6.8	1.0	1.0
7.0	neutral	6.9–7.2	1.0	1.0
7.5	slightly alkaline	7.3–7.8	1.0	1.0
8.1	slightly alkaline	7.9–8.4	—	0.9
8.7	moderately alkaline	8.5–9.0	—	0.8
9.2	strongly alkaline	9.1–9.4	—	0.7
9.7	very strongly alkaline	9.5–10.0	—	0.6
9.9	extremely alkaline	≥ 10.1	—	0.3

S3.5. Indicator 63 — soil reaction in the top 20 cm, pH in 1:2.5 aqueous suspension

Code	Coef. at corrected precipitation ≤ 600 mm	Coef. at ≥ 601 mm
005	0.2	0.3
015	0.5	0.6
035	0.7	0.9
063	0.9	1.0
088	1.0	1.0
113–175	1.0	1.0

S3.6. Indicator 133 — useful soil volume

Code	Coefficient
015	0.4
045	0.5
090	0.7
140	0.9
180–350	1.0
500	1.0
700	1.0

S3.7. Indicator 144 — humus reserve in 0–50 cm, on soils of medium and fine texture

Note to S3.4: the lower limit of class 22 appears in the source as 20.0%, overlapping the upper limit of the preceding class; we assigned the value of 20.0% to class 17.

Note to S3.6 and S3.7: the codes are class midpoints. [Reference needed: value limits of the classes of indicators 133 and 144, from the annexes of the methodology, in their units of measurement.]

Note to S3.7: the table for indicator 144 branches by surface texture. On the modelled territory, surface texture takes only the values sandy loam, loam and clay loam, so only the branch reproduced here applies.

S4. Dry spells by year, 1990–2025

A dry spell is defined as an unbroken run of at least three days with precipitation below 1 mm. In each year the extraction covers the period from the second half of March to the end of July, on the 59 climate cells that intersect the commune. The annual value is the median, across cells, of each cell's longest spell; the minimum and maximum show the spatial dispersion within the same year. Dates are given as day.month. The last column counts the cells on which a spell of at least ten days falls entirely within the tuberisation window, 15 May–15 July.

Year	Median across cells (days)	Minimum	Maximum	Median spell	Cells with a spell ≥ 10 days in the window
1990	7	5	9	20.05–26.05	0
1991	9	8	9	31.03–08.04	0
1992	9	5	9	09.04–17.04	0
1993	8	7	8	25.04–02.05	0
1994	9	7	9	29.03–06.04	0
1995	5	5	8	02.04–06.04	0
1996	12	12	12	02.04–13.04	32
1997	12	9	12	26.04–07.05	0
1998	15	9	15	24.03–07.04	0
1999	5	5	6	05.04–09.04	0
2000	16	16	16	10.04–25.04	0
2001	10	8	10	26.04–05.05	0
2002	10	10	10	02.05–11.05	0
2003	15	13	15	30.04–14.05	0
2004	8	8	12	16.04–23.04	0
2005	12	9	22	21.03–01.04	0
2006	7	4	9	30.04–06.05	0
2007	17	9	17	26.03–11.04	0
2008	7	6	7	24.04–30.04	0
2009	12	9	16	22.04–03.05	0
2010	9	4	9	06.06–14.06	0
2011	16	15	16	16.04–01.05	0
2012	9	8	12	14.06–22.06	9

2013	11	9	23	25.04–05.05	0
2014	10	10	10	27.03–05.04	0
2015	10	10	13	08.04–17.04	2
2016	10	8	10	31.03–09.04	0
2017	8	8	15	28.03–04.04	1
2018	10	7	11	08.04–17.04	0
2019	22	16	24	21.03–11.04	0
2020	21	15	21	25.03–14.04	0
2021	8	8	12	25.03–01.04	0
2022	15	15	16	14.07–28.07	0
2023	11	10	11	27.04–07.05	0
2024	10	9	13	26.04–05.05	0
2025	10	10	10	08.06–17.06	59

The median over the thirty-six years is ten days. The longest spells occur in 2019 and 2020, at twenty-two and twenty-one days, but both end before tuberisation. Two years have a spell of at least ten days falling entirely within the window on a majority of cells: 1996, on 32 of 59, and 2025, on all of them. Three further years — 2012, 2015 and 2017 — have such a spell on one to nine cells.

S5. Distribution of the modelled area over suitability classes

Modelled area: 2846.2 ha. Percentages are weighted by polygon area and calculated on the integer bonitation score, as the methodology prescribes. Source: the published layer described in S8, 6638 land units, excluding unscored polygons and land cover classes that are not part of the modelled area.

S5.1. Summary grouping — five classes, steps of twenty points

Aggregation rule	81–100 (I)	61–80 (II)	41–60 (III)	21–40 (IV)	0–20 (V)
product, Eq. (1)	0.1%	6.2%	38.8%	33.5%	21.4%
geometric mean, Eq. (2)	73.3%	21.7%	5.0%	0.0%	0.0%
sum, equal weights, Eq. (3)	77.0%	23.0%	0.0%	0.0%	0.0%
sum, imported weights, Eq. (3)	94.7%	5.3%	0.0%	0.0%	0.0%

Absolute areas under the multiplicative rule: class I — 3.4 ha; class II — 176.1 ha; class III — 1104.0 ha; class IV — 952.7 ha; class V — 610.1 ha.

S5.2. Detailed grouping — ten classes, steps of ten points

Aggregation rule	I	II	III	IV	V	VI	VII	VIII	IX	X
product, Eq. (1)	0.0%	0.1%	1.1%	5.1%	18.9%	19.9%	22.9%	10.5%	8.3%	13.2%

geometric mean, Eq. (2)	17.5%	55.8%	9.5%	12.2%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%
sum, equal weights, Eq. (3)	18.3%	58.7%	21.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
sum, imported weights, Eq. (3)	63.4%	31.3%	4.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Detailed classes in steps of ten points, from 91–100 (I) to 0–10 (X), the first being the most suitable.

S5.3. Note on class limits

The limits are those of the official methodology, applied to the integer bonitation score. The calculated indices have two decimals, and classes are assigned on the integer part: a unit scoring 40.82 goes into class IV (21–40), not class III. Classifying on the decimal value would move 9.4 percentage points from class IV to class III under the multiplicative rule, so the point is not a formality.

Under the multiplicative rule, the summary grouping places 38.8% of the area in class III. The detailed grouping splits this block into two adjacent classes, V with 18.9% and VI with 19.9%, and shows that the mode of the distribution lies at the boundary between them, around a score of 50 points. The agreement analysis in Section 4.6 keeps the summary grouping: with ten classes, the chance expectation per class falls to about one tenth, and twelve sites can no longer be assessed against it under the rule set in Section 3.7.

S6. Reclassification tables for the thermal correction

The procedure follows the potential insolation model rather than the methodology's class matrix. The aspect and slope grids are reclassified according to the tables below and multiplied, and the product is assigned to the six insolation–shading steps. The values come from Stanciu (1981), calculated for the growing season at 45° N, in the form published by Tîrlă (2012) for a Carpathian catchment.

S6.1. Values assigned to aspects

Aspect	Value
South	120
South-east	34
South-west	29
East	20
West	20
North-east	12
North-west	12
North	10

S6.2. Values assigned to slope classes

Slope class	Value
under 5°	50
5–10°	45
10–15°	40
15–20°	35
20–25°	30
25–30°	23
30–35°	20
35–45°	15
45–60°	10
over 60°	3

S6.3. Insolation–shading steps

Step	Product interval	Percentage of normal insolation
over-insolated	above 1701	90–100%
insolated	430–1701	70–90%
semi-insolated	239–430	50–70%
semi-shaded	179–239	30–50%
shaded	101–179	10–30%
over-shaded	below 101	0–10%

The correction was applied in the positive direction only, although station data come from flat ground, where insolation is at its maximum; the limits of the transfer are stated in Section 5.5 of the article. Aspect enters the model only through this correction and was not kept as a separate layer in the attribute table.

S7. Original wording of the quoted interview excerpts

The quotations in the article are the authors' translations from Romanian. The original wording is given below as transcribed, including the regional forms of the spoken language, so that the translation can be checked. Each entry gives the respondent's code, the section in which the excerpt is quoted, the English text used in the article and the Romanian original. Ellipses in square brackets mark omitted speech.

I1 (Section 4.1). "Last year, for instance, there was a drought. You can't irrigate. [...] It's no use spraying and doing everything if it doesn't rain and you have no water just when the potato has to grow." — „*Anu' trecut, de exemplu, o fost secetă. Nu poți să irigi. [...] Degeaba bagi tratamente și faci de tăte dacă exact când cartofu' trebe să crească nu plouă și n-ai apă.*"

I1 (Section 4.1). "Not up on the ridge either, where the drought burns." — „*Nici sus, la culme, unde arde seceta.*"

I1 (Section 4.5). “We had 10 hectares, 11 even. After that it all went down: to 7, 8, 6... until we got to one hectare.” — *„Am avut și 10 hectare, și 11. După aceea tău o scăzut: la 7, 8, 6... până am ajuns la un hectar.”*

I6 (Section 4.5). “The areas have gone down, maybe from the 100% they used to be, to some 30% of what was grown at one time.” — *„Au scăzut suprafețele, poate din 100% cât erau, să mai fie 30% din ce se cultivau odată.”*

I5 (Section 4.5). “Since 2007, when APIA came, there are subsidies on the land and you have to work it.” — *„Din 2007, de când a apărut APIA, vin subvenții de pe teren și trebuie să îl lucrezi.”*

I2 (Section 4.5). “The potatoes sat in the ground a very long time, and they didn’t come up.” — *„Au stat foarte mult în pământ cartoful, și nu a răsărit.”*

I5 (Section 4.5). “Thirty years ago we didn’t have to spray them for Colorado beetle, for blight. Now more and more.” — *„Acum 30 de ani nu trebuia să le stropim de Colorado, de mană. Acum din ce în ce mai mult.”*

I1 (Section 4.5). “The weather comes first. If God doesn’t give water, there’s trouble.” — *„Vremea îi prima. Dacă nu dă Dumnezeu apă, îi bai.”*

I6 (Section 4.5). “First of all, not to depend on labour, because it’s hard to find.” — *„În primul rând să nu depinzi de forța de muncă, pentru că se găsesc greu.”*

I4 (Section 4.5, Tab. 4). “It affects us 60%.” — *„Ne afectează 60%.”*

I6 (Section 4.5). “You can hardly plant potatoes any more unless you put up an electric fence.” — *„Nu prea mai poți să semeni cartofi dacă nu faci gard electric.”*

I5 (Section 4.5). “When there’s drought we don’t really have any solutions. [...] We leave it to fate.” — *„Când este secetă nu prea avem soluții. [...] Lăsăm în voia sorții.”*

I4 (Section 4.5). “We’re giving up land because we can’t manage any more.” — *„Renunțăm la suprafețe că nu mai putem.”*

I1 (Section 4.5). “They have papers saying they’re from Rîșca and they bring in produce from elsewhere.” — *„Au acte că-s din Rîșca și bagă marfă adusă din alte părți.”*

I5 (Section 4.5). “Contracts were needed that you couldn’t fulfil.” — *„Trebuiau contracte pe care nu le puteai îndeplini.”*

I2 (Section 4.5). “It’s as if everyone pulls for himself.” — *„Parcă fiecare pentru el trage.”*

I2 (Section 4.5). “Some ten years [ago].” — *„Cam de vreo zece ani.”*

I6 (Section 4.5). “People have got old, young families have either gone to town or the older ones don’t plant at all any more.” — *„Lumea a îmbătrânit, familii tinere ori o plecat la oraș ori cei în vârstă nu mai pun deloc.”*

I7 (Section 4.5). “Back then we worked with the hoe, whereas now we work with the tractor.” — „*Atunci lucram cu sapa, în schimb acum lucrăm cu tractorul.*”

S8. Description of the published spatial layer

The layer “Potato land suitability classes” is published as an ArcGIS Online feature service at https://services-eu1.arcgis.com/F8h2IR2H5gJFVO2V/arcgis/rest/services/Potato_land_suitability_classes/FeatureServer. It holds 6638 polygons covering the commune, 6556.6 ha, in the Romanian national projection Stereographic 1970 (EPSG 3844). Each polygon is a land unit with a single soil unit, slope class, temperature class, precipitation class and land cover class; scores and classes are those of the four runs reported in Section 4.4.

The modelled area (Section 4.2) is the subset with Class_name equal to Permanent herbaceous, Periodically herbaceous or Low-growing woody plants, and a class other than “Fara clasa”: 2846.2 ha. The fields CL_PROD, CL_GEOM, CL_SUM_EQ and CL_SUM_CS are filled for every scored polygon, forest included; statistics for the modelled area require this filter. CL_PROD_Legend applies it already.

Text values are in Romanian, as in the sources. “Clasa I”–“Clasa V” are classes I–V, I being the most suitable; “Fara clasa” and “Fără clasă” mean no class. Coefficients (CF_) are on the 1–10 scale of the methodology tables (S3); divided by 10, they give the [0; 1] coefficients used in Eqs. (1)–(4).

OBJECTID. Internal identifier.

Denumire_unitate_sol. Soil unit name in the source (Romanian soil taxonomy).

Scale. Scale of the soil source: 1:10000, soil survey (Bakos et al., 2008); 1:200000, Soil Map of Romania, sheet L-34-XII Cluj (Florea & Asvadurov, 1994), used for forest and built-up land (Section 3.2).

Tip_sol. Soil type, the unit name reduced to type and subtype.

NO. Soil unit code in the source legend.

EDAPH_VOL, CF_133. Useful soil volume, value as coded in the source, and its coefficient (indicator 133, S3.6).

HUM_RES, CF_144. Humus reserve in 0–50 cm, value as coded in the source, and its coefficient (indicator 144, S3.7).

ph, CF_63. Soil reaction in the top 20 cm, pH in 1:2.5 aqueous suspension, and its coefficient (indicator 63, S3.5).

Adâncime_apăfreagtică. Groundwater depth class. Not scored (Section 3.3).

DESCR_TEXT. Surface texture class: Lutoasă, loam; Luto-argiloasă, clay loam; Luto-nisipoasă, sandy loam; Nisipolutoasa..lutoasa, loamy sand to loam; s/u and s/s, codes of the 1:200,000 source. Not scored.

Eroziune. Erosion class: Redusă, slight; Moderată, moderate; Puternică, strong; Excesivă, excessive; De adâncime, gully. Not scored.

SLOPE, CF_33. Slope class in degrees, from Copernicus DEM GLO-30, and its coefficient (indicator 33, S3.4).

TEMPERATURE, CF_3C. Corrected mean annual temperature class, °C, and its coefficient (indicator 3C, S3.1; correction in Section 3.3.1 and S6).

PRECIPITATION, CF_4. Mean annual precipitation class, mm, without topoclimatic correction, and its coefficient (indicator 4C, S3.2–S3.3).

ALT_MEDIE. Mean altitude of the polygon, m, from Copernicus DEM GLO-30. Empty for 519 polygons.

gridcode, Class_name. Land cover code and class from CLCplus Backbone 2023 (European Environment Agency, 2025); defines the modelled area.

NB_PROD. Bonitation score, 0–100, multiplicative rule, Eq. (1). Empty for the 214 polygons below the methodology thresholds.

NB_GEOM. The same score as a geometric mean, Eq. (2).

NB_SUM_EQ. Weighted sum with equal weights, Eq. (3); the reference scenario.

NB_SUM_CS. Weighted sum with the weights of Ceballos-Silva & López-Blanco (2003), Eq. (3) (Section 3.3.3).

D_DEZECH. Imbalance index D of the coefficient profile, Eq. (4).

CL_PROD, CL_GEOM, CL_SUM_EQ, CL_SUM_CS. Suitability class, I–V, from the integer part of the corresponding score in steps of twenty points (Section 3.3.2).

CL_PROD_Legend. The class mapped in Fig. 3: CL_PROD inside the modelled area; “Fără clasă” for forest, water, built-up and sparsely vegetated land and for unscored polygons.

GlobalID, Shape__Area, Shape__Length. Service identifier; polygon area, m²; perimeter, m.

S9. Methodological details moved from the main text

S9.1 Coverage of the bonitation layer (Section 3.2). The bonitation layer covers 6556.6 ha, of which 36.6 ha remain unscored — 26.4 ha of open water and the rest polygons below the methodology’s thresholds — and 6519.9 ha are classified; the modelled area is clipped from the latter. Of the modelled area, 89.3% comes from the 1:10,000 soil survey, so the infill from the generalised source concerns a tenth of the modelled area and less than one per cent of the land declared under potato.

S9.2 Indicators not retained (Section 3.3). The checks on groundwater depth, gleyic units and texture were made on the attribute table of the published layer (fields Adâncime_apăfreagtică, Tip_sol and DESCR_TEXT; S8), not on the scoring tables.

S9.3 Mapping of the literature weights (Section 3.3.3). The weights of Ceballos-Silva & López-Blanco (2003) were mapped onto the six indicators through three decisions. The weight of soil depth was assigned to useful soil volume. The weight of altitude was dropped, because altitude is implicit in the relief correction of temperature. The weight of texture, which has no direct counterpart, was split equally between soil reaction and humus reserve. The weights were then renormalised to sum to one. Equal weighting, used as the reference scenario, asserts that the six criteria count equally; for that reason it isolates the effect of weighting.

S9.4 Interviews and observation (Section 3.6). Transcripts were produced automatically with speaker recognition (TurboScribe), and each was checked in full by hand by two people against the original recording. The first interview guide groups its eighteen items into six thematic blocks, from the farm profile to the relation with the market; the second opens with two screening questions that assign respondents to four categories, of which the mixed category was not encountered in the field. All segments from the administration representative are assigned to the institutional category, and the interpretation distinguishes between the institution's position and his experience as a grower. For each market, the observation sheet records the number of stalls selling potatoes, the number displaying origin, the form of the origin claim and the price. The stall selling potatoes is the unit of counting, and an origin claim is any written indication that attributes the produce to the commune. One of the nine markets had no potatoes for sale. The sheet is structured on observational audit instruments developed for public health nutrition in the United States (Glanz et al., 2007; Byker Shanks et al., 2015).

S9.5 Coding frame (Section 3.6). The nine main codes cover the components of risk assessment: local manifestations of hazard, crop exposure, sensitivity as perceived change in the thermal and precipitation regime, adaptive capacity at the household and collective level, and the economic and demographic conditions on which keeping the crop depends.

S9.6 Land cover excluded from the modelled area (Section 4.2). Broadleaved and coniferous forest, 3641.4 ha together; open water, 27.2 ha; built-up land, 21.0 ha; sparsely vegetated land, 15.9 ha.