

Multicriteria assessment and sustainability of Czech farms within the framework of FADN/FSDN survey

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Multicriteria assessment enables a comprehensive evaluation of agricultural holdings that extends beyond purely economic performance. It takes into account multiple aspects of farm management that together determine the long-term sustainability of agricultural production. The methodology uses data from the FADN CZ survey and employs **35 indicators across five main dimensions: production, economic, financial stability, environ-**

mental and social/other. The aggregation of point-based evaluations of individual indicators creates the composite index score.

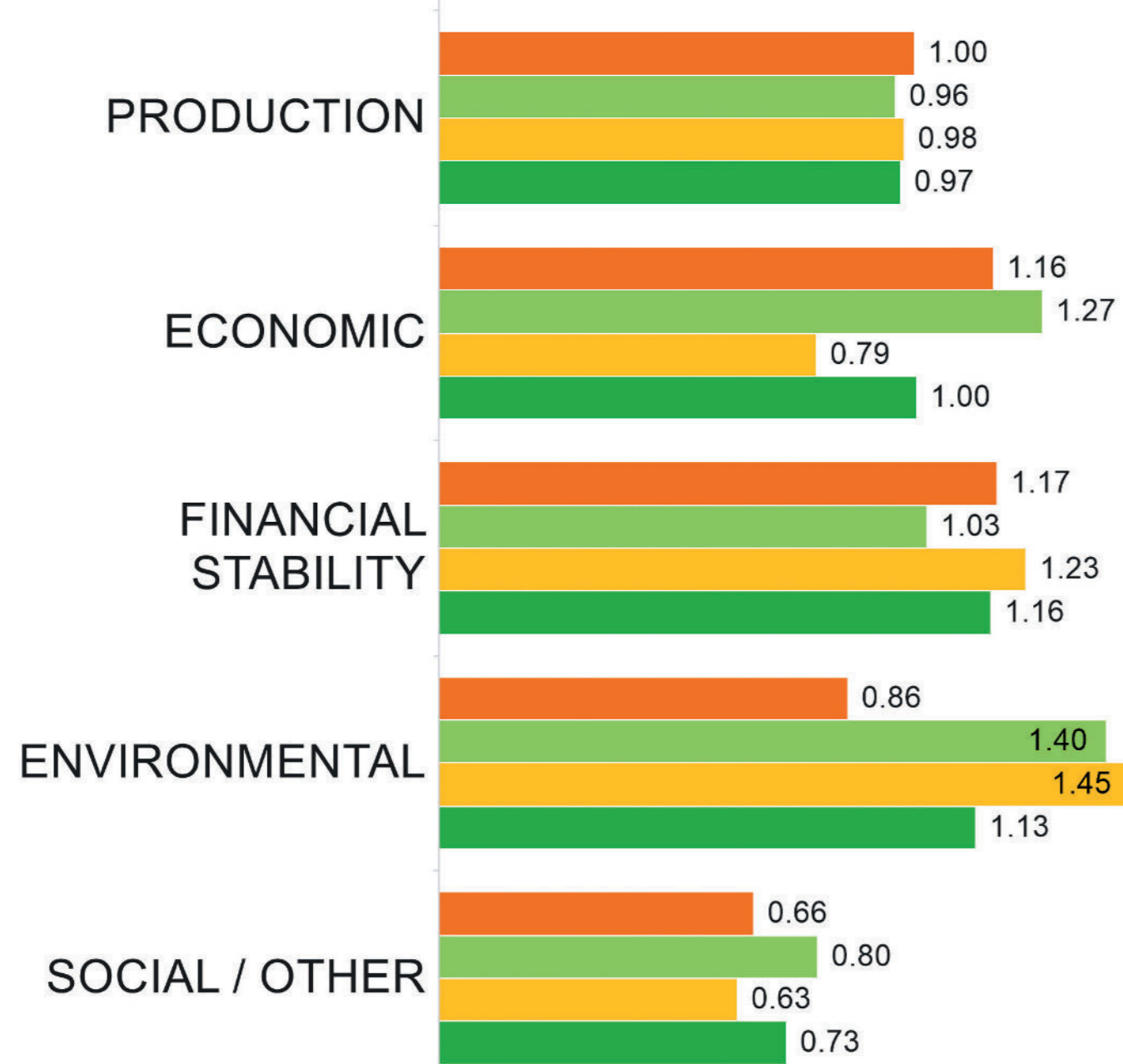
A higher score indicates a higher level of long-term sustainability of the agricultural holding. The results are analysed by type of farming, economic size, farming practices, and the use of precision technologies.

Project objective for 2026

- To develop a robust multicriteria assessment system that mitigates short-term fluctuations and identifies the resilience of farms over a multi-year horizon.
- Proposal and implementation of new FSDN indicators. Review of all indicators.

Dimensions according to types of farming (FADN CZ 2024)

- Fieldcrops
- Milk
- Grazing Livestock
- Mixed



PRODUCTION
Crop yield
Weight increase
Livestock yield
Livestock mortality



ECONOMIC
Farm Net Value Added/AWU
Total production/AWU
Production/unit
Specific costs/unit
Intermediate consumption/production
Return on Equity
Economic viability index



FINANCIAL STABILITY
Quick ratio liquidity
Cash flow liquidity
Total Debt to Total Assets
Maturity of receivables
Net working capital index
Investment without subsidies



SOCIAL & OTHER
Gender
Age
Number of employees
Education
Wages
Protection of origin (PDO/PGI)
Diversification
Land ownership



ENVIRONMENTAL
Organic manure
Mineral fertilizers
Crop protection
Share of legumes
Stocking density
Share of grassing
Greening
Energy productivity
Share of crops improving soil
Renewable energy production

SCORING METHODS:

- Deciles (higher values indicate better performance)
- Deciles (lower values indicate better performance)
- Deciles (optimum in the middle)
- Intervals
- Binary (1 / 0)
- Points (1 / 5 / 10)

A NEW APPROACH: TIME SERIES

1

SELECT TIME PERIOD

Choose the time horizon for the analysis



Example: 5 years

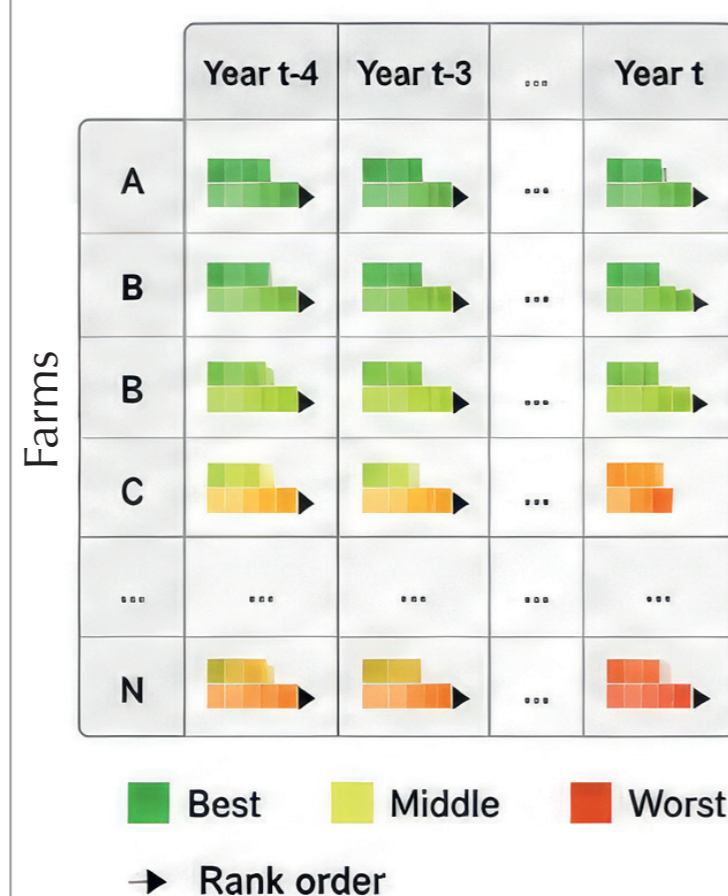
Year t-4
Year t-3
Year t-2
Year t-1
Year t

2

RANKING OF FARMS

For each indicator, data for all selected years and all farms are ranked (as in a single-year calculation).

Example indicator



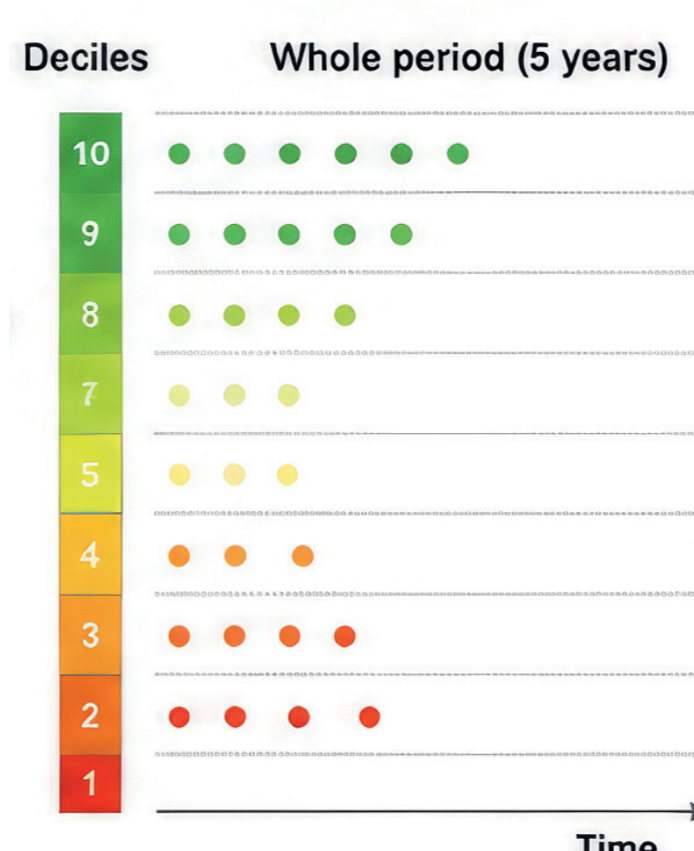
Ranking is performed separately for each indicator.

3

SCORING ACROSS THE TIME PERIOD

Applying the principles of deciles, intervals, etc., to the time series for each indicator.

Example indicator



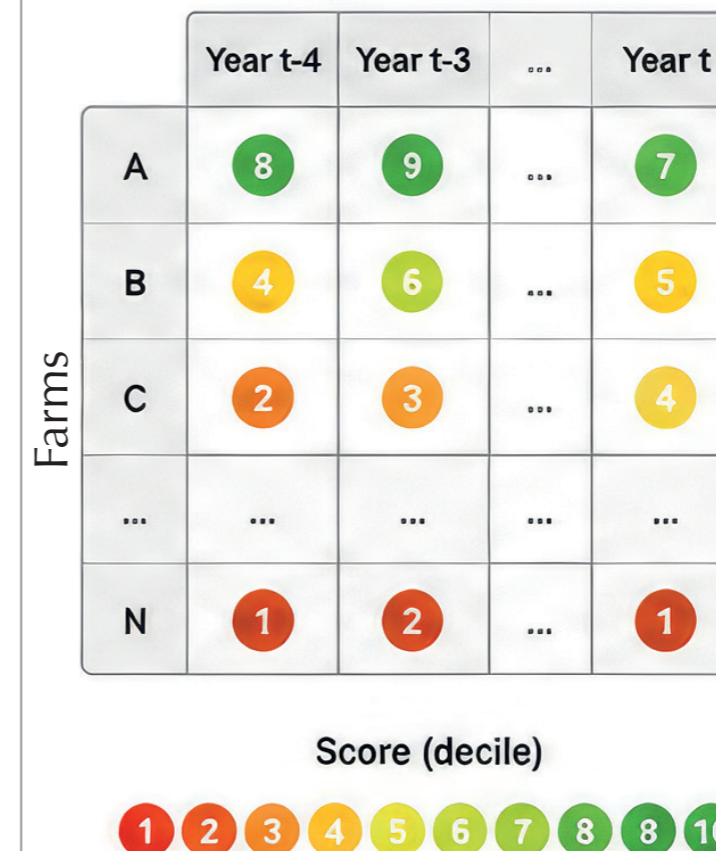
Scoring are determined using all observations from the entire time period.

4

ASSIGN SCORES ACROSS TIME PERIOD

Each farm-year observation receives a score based on the period-wide thresholds

Example indicator



Scores reflect the farm's relative position compared to all observations in the selected time period.

5

AGGREGATE SCORES ACROSS DIMENSIONS

Aggregate indicator scores into dimension scores and the overall resilience index.



RESILIENCE INDEX (entire period)

Aggregation can be done using weights and methodology consistent with the annual approach.



INPUT DATA
FADN/FSDN
FARM DATA

Multiple indicators across the selected time interval

Consistent methodology across all years

Comparability ensured within the entire time horizon

Reduces short-term fluctuations and captures long-term resilience



RESILIENCE INDEX
BASED ON SELECTED
TIME PERIOD