

RISE - Response Inducing Sustainability Evaluation at farm level

The RISE 2.0 Indicators and Parameters





Calculation of Indicators and Parameters

The farm data collected with the questionnaire is compared with reference data and transformed into a scale from 0 to 100, using one or several valuation functions. Coefficients needed for these calculations are retrieved from a database that is included with the RISE 2.0 software.

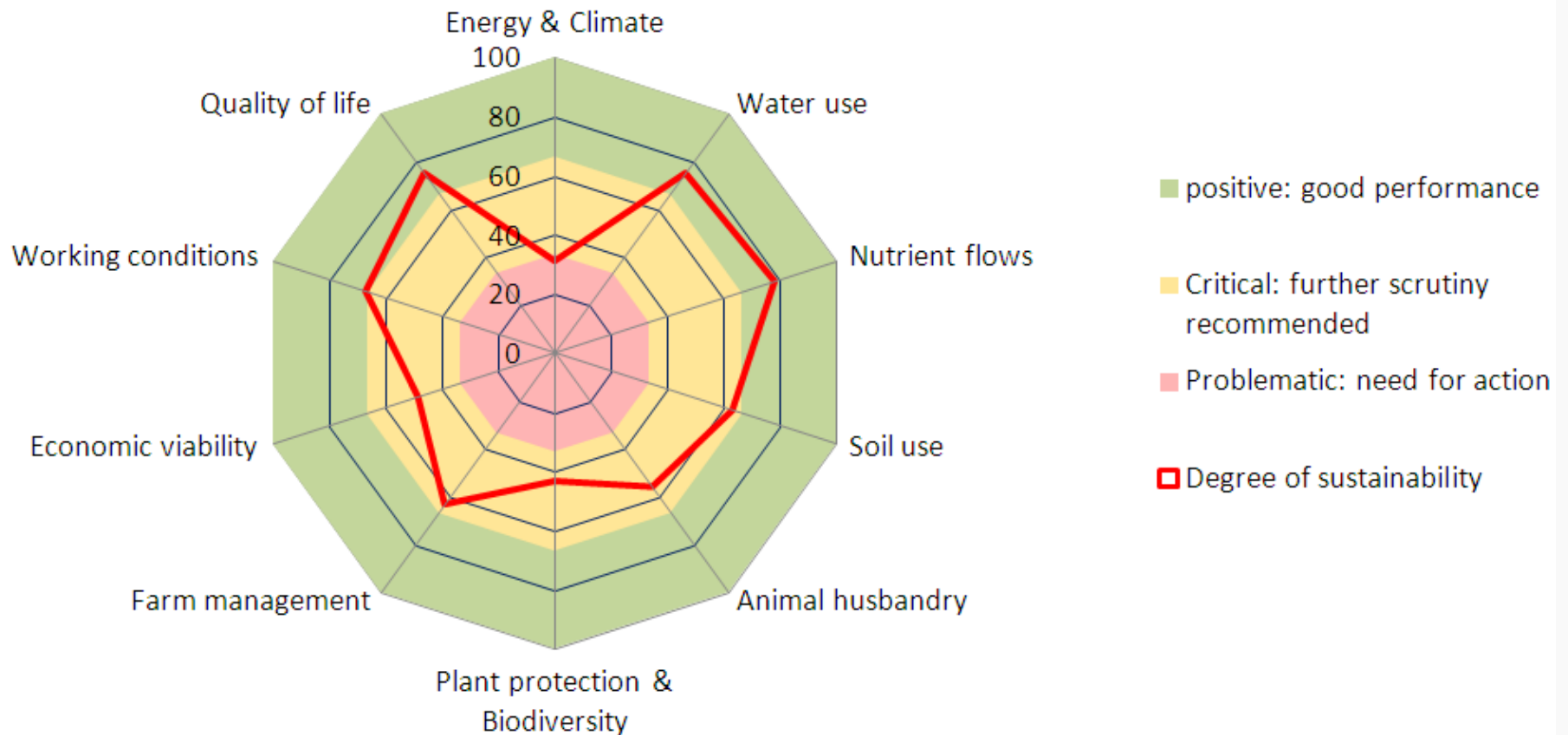
The scores that result from the normalization to this scale are termed “parameters” in RISE.

The indicator scores, termed as “degrees of sustainability”, are the arithmetic means of four to seven equally weighted parameters.

Degree of sustainability	Problematic 0 – 33	Critical 34 – 66	Positive 67 - 100
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The most aggregated form of the RISE 2.0 results is the sustainability polygon with which the degrees of sustainability of all indicators are shown at a glance.

The RISE 2.0 polygon (Swiss farm)





SO Soil use (Indicator)

Indicator topic

Fertile soils are a limited, easily degradable basis of life and production. This indicator reflects the state of soils on the farm and the impact of farming practices on this state.

The indicator answers the following questions of the farmer:

- How is the fertility of my soils rated?
- What impacts do my farming practices have on soil fertility?

Parameters

- So_1 Soil management
- So_2 Crop productivity
- So_3 Soil organic matter supply
- So_4 Soil reaction
- So_5 Soil pollution
- So_6 Soil erosion
- So_7 Soil compaction



SO Soil use (Parameters 1)

So_1 Soil management

Goal: Knowledge and technology are employed for a site-adapted, conserving soil use.

Content: It is assessed whether soil analysis, soil organic matter and nutrient balances are done and taken into account, and whether any agricultural areas were lost within the last ten years.

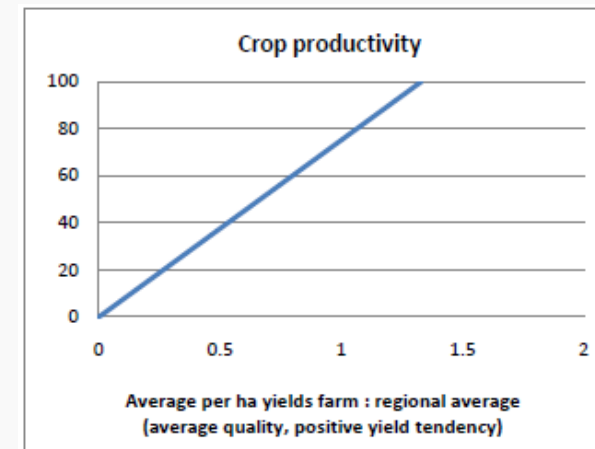
Valuation: 100 points if analyses are done and no areas were lost.

So_2 Crop productivity

Goal: Through high yields the farm contributes to covering the demand for agricultural products.

Content: Yields (per unit area) of all crops grown on the farm are compared to national (or regional) averages, product quality as well as yield and quality trends of the last five years are evaluated.

Valuation: 67 points for regional standard yield,
+/- 20 points correction for quality and development of yield



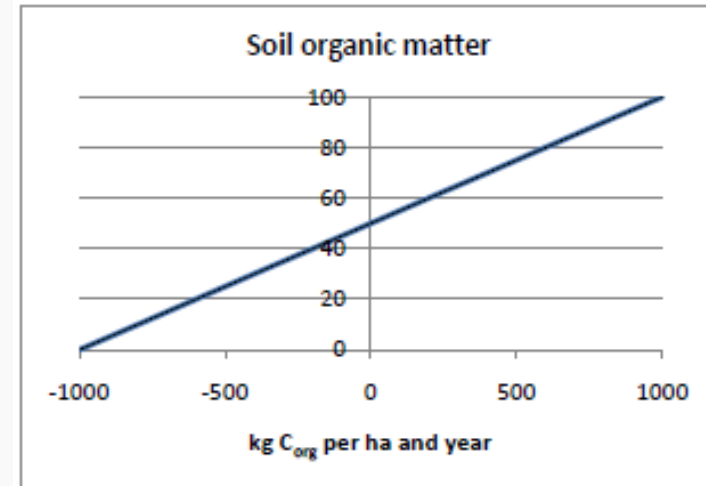
SO Soil use (Parameters 2)

So_3 Soil organic matter supply

Goal: The farm's soils are well supplied with organic matter (SOM).

Content: The agriculturally used soils organic matter content is estimated and a soil organic matter balance calculated for all cultivation systems employed on arable land.

Valuation: Land use * standard content (e.g. permanent pasture and forest = high, arable land = depending on actual content 1 point = 20 kg SOM-C per ha * year, from -1'000 to +1'000 kg C/ha*a)



So_4 Soil reaction

Goal: Soils react in the pH range optimal for crop growth and are affected neither by salinisation nor by acidification.

Content: The soil pH is evaluated from the perspective of crop requirements and the risks of salinization and acidification are assessed.

Valuation: 100 points when all soils are between pH 5.5 and pH 7.0, reduction when using acidic fertilizers in humid climates and/or irrigating without proper drainage.



SO Soil use (Parameters 3)

So_5 Soil pollution

Goal: Soil health is not compromised through immissions of toxic substances.

Content: The risk of soil pollution by heavy metals, antibiotics and other pollutants is qualitatively assessed.

Valuation: 100 points = no risk for soil pollution

So_6 Soil erosion

Goal: The farm loses no soil through water or wind erosion.

Content: Taking into account the climatic and topographic conditions, soil cover, soil texture and management, the risk of water and wind erosion is calculated, weighted by area and adjusted for observed erosion.

Valuation: 100 points = no erosion observed and no erosion risk calculated (zero tolerance because of off-site damage)

So_7 Soil compaction

Goal: Soil gas and water balances are not compromised due to man-made sub-soil compaction.

Content: The risk of excessive soil compaction is assessed based on risk factors (wheel load, soil moisture, soil texture, tillage) and stability factors (pressure reduction, improvement of soil stability).

Valuation: 100 points = no signs of compaction, soils neither prone to compaction nor plowed, max. wheel load 2.5 t or less



AH Animal husbandry (Indicator)

Indicator topic

Livestock are an integral component of many agricultural production systems. Animals have to be kept in an environmentally unproblematic and species-appropriate way. The latter encompasses the “five freedoms“: freedom from hunger and thirst, from discomfort, from pain and disease, from constraints to natural behavior, and from fear and distress (FAWC, 1979). At the same time, a high performance and resource efficiency are aimed for. This indicator reflects:

- Whether livestock performance is at a high level,
- Whether livestock husbandry systems allow for species-appropriate behavior,
- Whether the physiological needs of the animals are met and
- Whether animals live a healthy life.

Parameters

- Ah_1 Herd management
- Ah_2 Livestock productivity
- Ah_3 Possibility for species-appropriate behavior
- Ah_4 Quality of housing
- Ah_5 Animal health



AH Animal husbandry (Parameters 1)

Ah_1 Herd management

Goal: All livestock on farm is well managed.

Content: The availability of livestock-related information and its active use in breeding and husbandry, with the aim of improved animal welfare, is rated.

Valuation: 100 points = systematic monitoring and documentation of livestock (health and performance), well balanced criteria for selection and breeding

Ah_2 Livestock productivity

Goal: Through high yields the farm contributes to covering the demand for agricultural products.

Content: Annual performance of all livestock categories is compared with the respective national average, and product quality and performance trends of the last 5 years are rated.

Valuation: 67 points for regional standard yield, +/- 20 points correction for quality and development of yield



AH Animal husbandry (Parameters 2)

Ah_3 Possibility for species-appropriate behaviour

Goal: Animals can live out their natural behaviour.

Content: Sufficient open-air exercise, contact with other animals of the same species and the environment to allow species-appropriate behavior is evaluated.

Valuation: One criterion not met = 50 points, two criteria not met = 0 points

Cattle and Bovines

Optimal (A) = Outdoor access during at least 8 hours/day and 90 days/year distributed over the whole year, free moving space, no „cow trainer“, skidproof, soft (and clean) ground in the stable, direct contact with conspecifics (at least visual contact).

Pigs

Optimal (A) = Spatially structured pens, free moving space, areas to lie down are soft, dry and clean, bedding and toys, stable groups. Sows: material for nest-building (e.g. straw).

Poultry (laying hens, broilers, turkeys, Pekin ducks)

Optimal (A) = Zugang zu einer Weide, free moving space, formable bedding, elevated perch.

Horses and Equines

Optimal (A) = Whole-year outdoor access, free moving space, skidproof, soft (and clean) ground in the stable, structured environment in stable and/or paddock, direct contact with conspecifics (at least visual contact).

Sheep and Goats

Optimal (A) = Outdoor access during at least 8 hours/day and 90 days/year distributed over the whole year, free moving space, skidproof, soft (and clean) ground in the stable, area to lie down with bedding in the stable, direct contact with conspecifics (at least visual contact).



AH Animal husbandry (Parameters 3)

Ah_4 Quality of housing

Goal: The physiological needs of the animals are met, they live in a species-appropriate environment.

Content: Temperature, lighting, air, water quality and noise level in the animal building(s) are rated.

Valuation: 100 points = All animals are kept in a species appropriate environment.

Ah_5 Animal health

Goal: All livestock are free from diseases and pain.

Content: The percentage of the herd lost within one year due to diseases and injuries, the frequency and type of use of veterinary drugs, as well as the share of „mutilated“ animals are rated.

Valuation: 100 points = no curative, prophylactic, growth-boosting treatments, 0% mortality, no mutilated animals



NF Nutrient flows (Indicator)

Indicator topic

A sustainable agricultural production makes use of natural nutrient cycles. Nutrient flows should be well- balanced and at a high level of productivity. Emissions of harmful substances as well as waste production should be minimized.

This indicator deals with:

- Nitrogen and phosphorus balances at farm level,
- Ammonia, nitrate and phosphate emissions caused by agricultural production on the farm and
- The quality of farm waste management.

Parameters

- Nf_1 Nitrogen balance
- Nf_2 Phosphorus balance
- Nf_3 N and P self-sufficiency
- Nf_4 Ammonia emissions
- Nf_5 Waste management



NF Nutrient flows (Parameters 1)

Nf_1 Nitrogen balance

Goal: Neither lack nor environmentally damaging surplus and losses of N.

Content: The N balance at farm level is rated based on a supply-demand balance (correction for soil supply level, nutrient imports and exports)

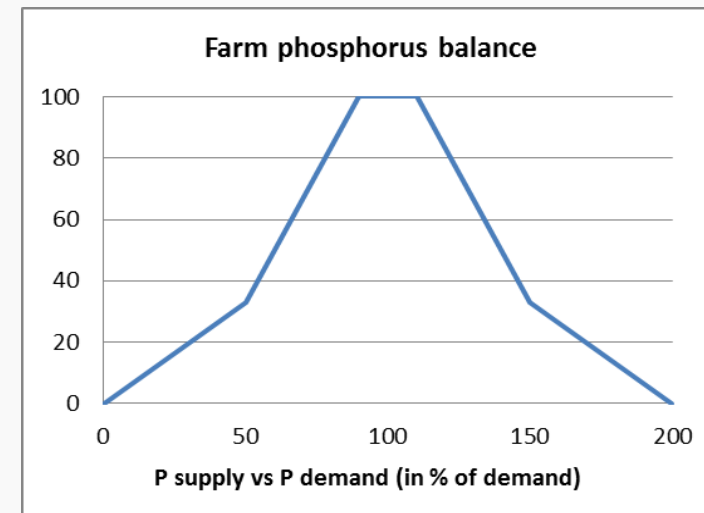
Valuation: 100 points = equal balance \pm 10%, linear decline of score down to 100% lack resp. surplus

Nf_2 Phosphorus balance

Goal: Neither lack nor environmentally damaging surplus and losses of P.

Content: The P balance at farm level is assessed based on a supply-demand balance (correction for soil supply level, nutrient imports and exports)

Valuation: 100 points = equal balance \pm 10%, linear decline of score down to 100% lack resp. surplus





NF Nutrient flows (Parameters 2)

Nf_3 N and P self-sufficiency

Goal: Nutrient cycles are kept as (spatially) tight as possible.

Content: The contribution of (farm-) internal sources in % to N and P supply of livestock and crops is evaluated.

Valuation: 100 points = 100% on-farm nutrients

Nf_4 Ammonia emissions

Goal: Emissions to the environment are kept at the lowest possible level.

Content: Ammonia emissions from livestock keeping, storage and application of manure and slurry are calculated and evaluated.

Valuation: 100 points = 0 kg NH₃. 0 points = worst possible reference situation > at least 2 LLU per ha, no pasture, no prevention measures

Criteria	Best situation	Worst situation
Livestock density	No livestock on the farm	≥ 3 LLU/ha agricultural area
Access to pasture	All year round, min. 22 hours/day	No access to pasture
Manure & slurry storage	Covered by concrete, wood or plastic, stirred once per month	No cover, stirred at least three times per month
Manure & slurry application and incorporation	Immediate, deep injection of slurry	Spread without incorporation
Use of mineral N fertilizer	No mineral N fertilizer used	≥ 300 kg mineral N/ha agricultural area



NF Nutrient flows (Parameters 3)

Nf_5 Waste management

Goal: Valuable substances are recycled. Problematic wastes are disposed of such that man and environment are not threatened.

Content: For the most important 12 types of waste, the quality of their utilization, storage and/or disposal is rated and weighted according to the ecological harmfulness of the respective waste type.

Valuation: 100 points = all non-problematic waste categories are recycled and no problem wastes accrue on farm. Minus points according to waste treatment.

Category	Type	Recycled	Destroyed (burned)	Safe storage ¹²	Unsafe storage, wild disposal ¹³
Recyclable materials	Paper & carton	0	10	5	15
	Metal	0	20	5	20
	Plastics	0	15	5	20
	Glass	0	15	5	15
	Rubber	0	15	5	20
	Electronic devices	0	20	5	20
Problem wastes	Animal carcasses ¹⁴	20	5	5	35
	Waste oil	0	20	5	35
	Batteries	0	35	5	35
	Plant protection products, veterinary medicals (incl. packaging)	20 (packaging)	20	5	35
	Acidic & alkaline detergents	15 (packaging)	15	5	35
	Dyes, colors, wood protection, thinner, glue, etc. (incl. packaging)	20 (packaging)	20	5	35



WA Water use (Indicator)

Indicator topic

Clean water is an indispensable basis of human life, crop and livestock production. Through the production system(s), the farmer can have a direct impact upon amount and quality of the water available to other stakeholders.

This indicator shows:

- How well the farm is supplied with clean water,
- How intense and efficiency water is used for production and
- Whether water use and wastewater disposal on the farm impose risks for water resources and their users.

Parameters

- Wa_1 Water management
- Wa_2 Water supply
- Wa_3 Water use intensity
- Wa_4 Risks to water quality



WA Water use (Parameters 1)

Wa_1 Water management

Goal: Knowledge and technology are employed for a site-adapted, conserving water use.

Content: The record and use of water quality and quantity information is assessed.

Additionally, water storage, water recycling and water use efficiency measure use methods are evaluated.

Valuation: Monitoring of information on water supply and quality, hygienically safe water recycling and water storing facilities sum up to 50 points. Another 50 points are given for water saving measures according to their impact (5 to 25 points per measure).

Wa_2 Water supply

Goal: Quantity and quality of water supply are secure in the long term.

Content: Current situation, trends and potential for conflicts concerning quantitative and qualitative water supply are recorded and assessed.

Valuation: 100 points if no problems are observed on farm (no need to drill deeper wells, no water related conflicts, no problems with water quality, no decrease in water availability, stable ground water levels) in combination with a “low” regional water stress level based on WBCSD Global Water Tool.



WA Water use (Parameters 2)

Wa_3 Water use intensity

Goal: The water intensity of agricultural production systems is site-adapted.

Content: Farm crops and livestock demand is calculated based on standard coefficients and compared with water supply as determined by climatic conditions.

Valuation: Average of points for water use intensity (0 points = 10'000 m³/ha, 100 points = 2'000 m³/ha) and points for climatic water availability (based on the regional moisture index 0 points = Index -100, 100 points = Index 100).

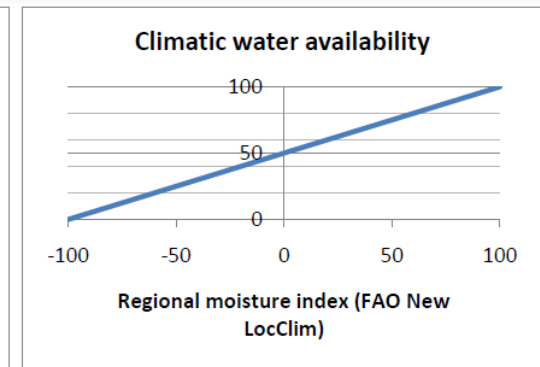
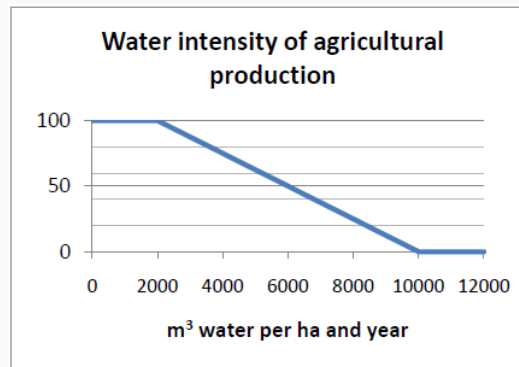


Figure 25. Valuation functions of parameter wa_3. Example calculation: water intensity of production = 7'000 m³/ha (37.5 points), moisture index = 42 (46 points) ⇒ wa_3 = (37.5 + 46)/2 = 41.75.

Wa_4 Risks to water quality

Goal: No risks to water quality and the health of man, animals and ecosystems.

Content: The risk of local eutrophication or other forms of water pollution resulting from the handling of manure, slurry, silage, soils and waste water is evaluated.

Valuation: 100 points for: No parcels with very high nitrogen leaching risk, livestock never enters open water, moderate water erosion risk, 100% of wastewater adequately treated, no silage stored, very safe storage of slurry and manure, surface waters protected by a densely vegetated buffer strip.



EC Energy & Climate (Indicator)

Indicator topic

To be sustainable, agricultural production has to be energy-efficient and independent from non-renewable, environmentally harmful energy carriers. This also serves to safeguard climatic conditions conducive to the health of plants, animals, humans and ecosystems.

This indicator shows:

- How energy-intensive agricultural production is on-farm,
- To what extent does energy depend on non-sustainable energy carriers,
- What energy-saving measures have been implemented,
- How agricultural production on the farm contributes to global warming.

Parameters

- Ec_1 Energy management
- Ec_2 Energy intensity of agricultural production
- Ec_3 Share of sustainable energy carriers
- Ec_4 Greenhouse gas balance



EC Energy & Climate (Parameters 1)

Ec_1 Energy management

Goal: The farm's energy situation is (quantitatively) known and improved.

Content: The availability and active use of on-farm energy is evaluated. Additionally, energy-saving measures are assessed.

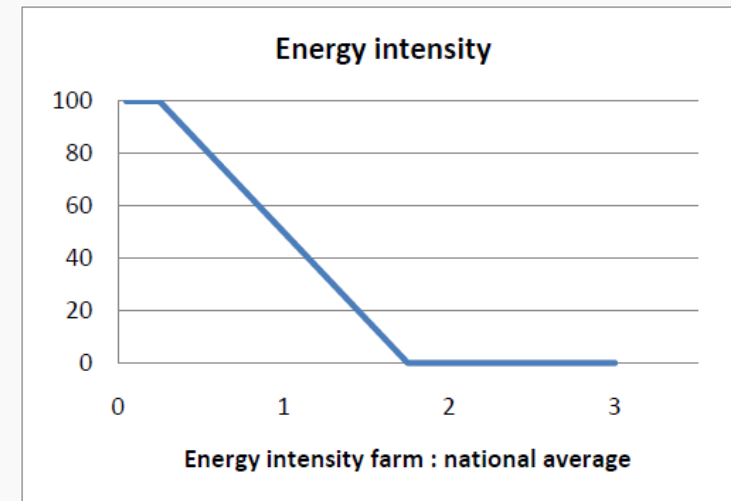
Valuation: 20 points for the monitoring of energy consumption plus points for energy saving measures according to their impact (5 to 25 points per measure).

Ec_2 Energy intensity of agricultural production

Goal: Low energy intensity per ha agricultural area (less than the present national average of the agricultural sector).

Content: Energy intensity in GJ per hectare of agricultural area is determined from quantities and energy densities of all energy carriers used, corrected by imports and exports through contract work and rated by comparison with the national or regional average energy intensity.

Valuation: 50 points if farm energy consumption is similar to the national average.





EC Energy & Climate (Parameters 2)

Ec_3 Share of renewable energy

Goal: Low dependency on non-renewable energy carriers (100% renewable).

Content: The share (in %) of sustainable energy carriers in total farm energy use is calculated and directly translated into RISE 2.0 points (1% = 1 point).

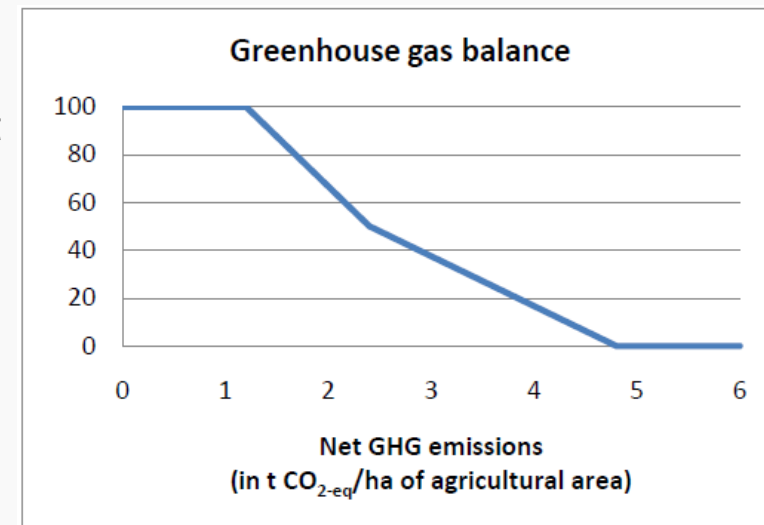
Valuation: 100 points for 100% sustainable energy carriers used.

Ec_4 Greenhouse gas balance

Goal: No GHG release in amounts damaging our climate (at least 50% less than current international average).

Content: A GHG balance is calculated based on emissions per energy carrier, per animal, from rice production, from burning of vegetation and land use cover change, minus sequestration through forestation, and measures enhancing soil humus content (no-till etc), and rated by comparison with a global threshold value.

Valuation: 50 points = 2.4 t/ha (global average),
100 points = 1.2 t/ha (50% reduction for „2°C goal“).





BP Biodiversity & Plant protection (Indicator)

Indicator topic

The diversity of organisms and the health of ecosystems are closely tied with each other. Through the regulation of water, nutrient and gas balances, pollination, soil formation and other functions, diverse ecosystems render agricultural production and human existence possible in the first place.

This indicator rates:

- How diversity at the species and genome level is fostered on the agricultural area,
- How well natural ecosystems are preserved and interlinked within the agricultural landscape,
- The quality of plant protection management on the farm, and
- Whether substances that are poisonous to man and nature and used for crop and livestock protection.

Parameters

- Bp_1 Plant protection management
- Bp_2 Ecological priority areas
- Bp_3 Agricultural intensity
- Bp_4 Landscape quality
- Bp_5 Diversity of agricultural production



BP Biodiversity & Plant protection (Parameters 1)

Bp_1 Plant protection management

Goal: Based on up-to-date knowledge and information, measures are implemented that increase the resilience of agro-ecosystems to pests, diseases and extreme events, resulting in high productivity with low use of toxic chemicals.

Content: It is rated to what extent plant protection management on the farm is in accordance with the principles of integrated plant protection, and how toxic and persistent the applied plant protection products are.

Valuation: 100 points when preventing pests and diseases (crop selection, crop rotation, biodiversity programs), taking into account damage thresholds when applying PPP and using low toxic and low persistent PPPs if necessary.

Bp_2 Ecological priority areas

Goal: There is a high proportion of plots with high biodiversity potential. They serve as habitats for rare and specialised plant and animal species.

Content: The share of areas with a high potential to host wild biodiversity in the farm area is determined and compared with a global target level.

Valuation: 100 points if 17% of farm area has a high biodiversity potential. The threshold can be regionally adapted.



BP Biodiversity & Plant protection (Parameters 2)

Bp_3 Intensity of agricultural production

Goal: A general low intensity of production and adaption of production techniques fosters high diversity.

Content: The intensity of fertilization, PPP use and livestock production is calculated on an area basis and records what measures are taken to foster biodiversity on the agricultural area. The rating combines both aspects.

Valuation: 100 points = No fertilization (0 kg of N per ha), no PPP applications, low stocking density (1 LLU per ha) and the implementation of all possible biodiversity promoting measures on all areas with crop production. Thresholds can be regionally adapted.

Bp_4 Landscape quality

Goal: A dense network of valuable ecological habitats exists in the agricultural landscape and allows animals to move along ecological stepping stones and corridors. No “erosion“ of ecological structures takes place.

Content: The mutual proximity of ecological structures as well as the development of the share of these structures in the landscape over the last 10 years are evaluated. (See explanatory drawing on the next page).

Valuation: 100 points if 100% of agricultural area is in the proximity (<50m) of ecologically valuable elements and if the development of these elements in the past 10 years went into the desired direction. Threshold can be regionally adapted.

BP Biodiversity & Plant protection (Parameters 3)

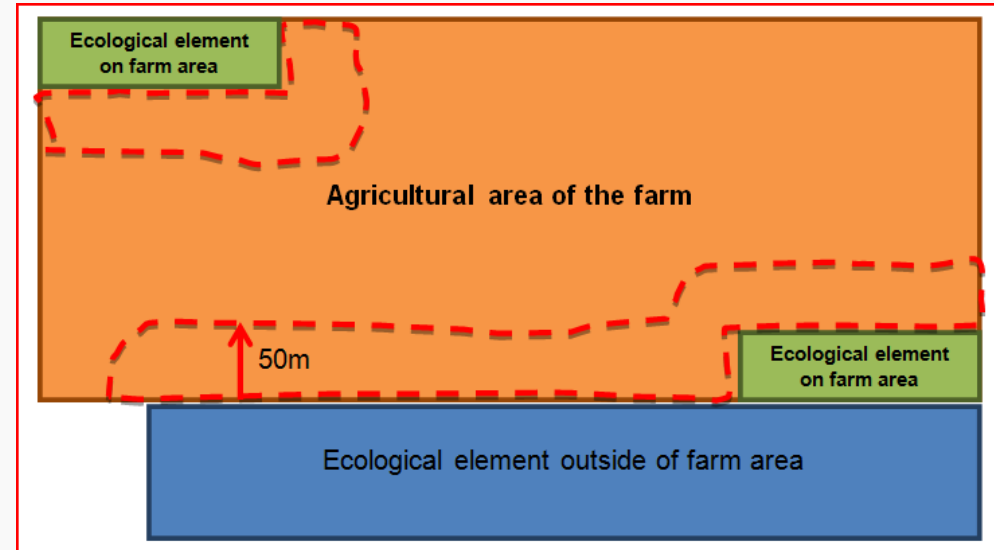
Explanatory drawing

Ecological priority areas (Bp_2)

Total area with ecological elements on the farm area (= green areas)

Landscape quality (Bp_4)

Share of the agricultural area in the proximity (< 50m) of ecological elements (= within red broken line)



Bp_5 Diversity of agricultural production

Goal: Through a diverse agricultural production, resilience is improved and valuable genetic resources are conserved.

Content: The respective numbers of land use types (for example: meadows, pasture, permanent crops, vegetables, roots, etc.), crop and livestock species, cultivars and breeds are recorded and rated, the score being adjusted for 1) rare and old cultivars and breeds and for 2) beekeeping.

Valuation: 100 points = 5 different land use types, 6 different livestock breeds and crop varieties, 3 rare or/and old cultivars and breeds and beekeeping on farm. The threshold for land use types can be regionally adapted.



WC Working conditions (Indicator)

Indicator topic

An able and willing labor force is a basic requirement for the success of an agricultural operation. These traits are decisively influenced by on-farm working conditions. Working conditions for farm employees and self-employed farm labor (persons living from the farm income) are estimated in RISE 2.0.

This indicator rates the following aspects:

- Organizational Health and Safety
- Work Organization
- Respect of Human Rights
- Remuneration and Working Times
- Fairness/Justice

Parameters

- Wc_1 Personnel management
- Wc_2 Working time
- Wc_3 Work safety
- Wc_4 Wage and income level



WC Working conditions (Parameters 1)

Wc_1 Personnel management

Goal: Good Personnel Management provides the production unit enough short, middle and long term supply of satisfied, motivated and adequately trained personnel. There is little potential for conflict when transparent and fair conditions and terms exist.

Content: The agricultural enterprise is checked to determine if the operation counts on professional, forward-looking personnel management and whether working conditions comply with the standards set by International Human Rights Conventions and Accords as well as (local) laws and regulations.

Valuation: 100 points = Personnel requirements known / Labor replacements for age-related organized / Apprenticeship program / Written working contracts / Payroll slip / Working permits / Motivational drivers used / Protection against unfair dismissal / Income protection / No discrimination / No forced labor / Freedom for participation in labor organizations

Wc_2 Working time

Goal: Each person working on the farm has enough free time to recover physically and mentally, in order to remain healthy and productive in the long run.

Content: Daily, weekly and yearly hours of work, as well as the annual holiday season, are determined and compared to the regional standard.

Valuation: 100 points = 5 days per week, 40 hours per week, 6 weeks of paid holiday per year, overtime is compensated. Thresholds may be regionally adapted.



Working conditions (Parameters 2)

Wc_3 Work safety

Goal: The number of on-farm accidents and illness are reduced to a minimum. Children are not harmed by work conducted on the agricultural enterprise.

Content: The frequency of on-farm accidents and illness and the respective prevention methods are evaluated. Additionally, the risk of child labor for on-farm activities is assessed

Valuation: 100 points = No work-related accidents and/or illnesses during the past 5 years / Safety concept in use / Safe PPP storage and application / Only low toxic PPPs used / No problematic child work

Wc_4 Wage and income level

Goal: On-farm labor receives an hourly wage for an acceptable working time that is clearly above the poverty threshold.

Content: Remuneration per working hour and financial needs of those working on-farm are evaluated.

Valuation: 34 points = The wage per hour of one person working a normal annual working time allows an average family to live on the regional subsistence level. 100 points = The salary per hour equals an annual wage of two subsistence levels. For self-employed the same calculation is done based on the farm income and the total working hours this working group. The thresholds (subsistence level, factor for 100 points, family size, normal working hours) can be regionally adapted.



QL Quality of life (Indicator)

Indicator topic

A high level of satisfaction with work and life in general is important for the physical, mental and social health of people living on the farm. Quality of life, satisfaction and happiness are important indicators for the success of sustainable development. Quality of life stems from the fulfillment of individual goals within current objectives.

Specific calculation of this indicator

This is the only indicator which is not the average of the parameters. People are asked to state the importance of each aspect before they answer about their satisfaction with the aspect. Aspects rated with higher importance have more weight in the individual result. The degree of sustainability of this indicator is the average quality of life of every individual person interviewed. The sixth parameter is optional. The interviewer may rate further aspects of life.

Parameters

- QI_1 Occupation and Education
- QI_2 Financial Situation
- QI_3 Social Relations
- QI_4 Personal Freedom and Values
- QI_5 Health
- QI_6 Further aspects of life (optional)



QL Quality of life (Parameters 1)

QI_1 Occupation and Education

Goal: All farm personnel are satisfied with their occupation as well as with their education and continued education courses.

Content: Current satisfaction levels of occupation and education are evaluated.

Valuation: 100 points = Very satisfied with actual employment/occupation, completed education and further education.

QI_2 Financial Situation

Goal: All on-farm personnel are satisfied with their financial situation.

Content: The importance and level of satisfaction regarding individual financial situations are measured.

Valuation: 100 points = Very satisfied with income received and standard of living

QI_3 Social Relations

Goal: All on-farm personnel who reside on the agricultural enterprise are satisfied with their social relations.

Content: The importance and satisfaction level of actual social relations are determined.

Valuation: 100 points = Very satisfied with family situation and social relations



QL Quality of life (Parameters 2)

QI_4 Personal Freedom and Values

Goal: All on-farm personnel are satisfied with their personal freedom and values.

Content: The importance of personal freedom and values are analyzed. Additionally, current satisfaction levels regarding these areas are measured.

Valuation: 100 points = Very satisfied in the aspects stability of the political and economic framework, personal freedom and cultural and spiritual activities.

QI_5 Health

Goal: On-farm personnel are satisfied with their health situation.

Content: Respondents gauge their personal health situation (including time management) and their level of satisfaction.

Valuation: 100 points = Very satisfied with the personal health and the time management.

QI_6 Further aspects of life (optional)

Goal: All on-farm personnel are content with their situation in further aspects of life they consider of importance for their quality of life.

Content: Further aspects of life are measured including the current satisfaction level.

Valuation: 100 points = Very satisfied with all further aspects mentioned by the interviewed person.



EV Economic viability (Indicator)

Indicator topic

An agricultural operation such as a farm is first and foremost a commercial enterprise. Therefore, as a “business case“, the obtainment of economic targets is central to the operations while ecological and social objectives of farm management are seen as constraints. Business responsibility entails long-term profit maximization while maintaining liquidity and stability. Daily management has to follow the principle of “Liquidity before Profitability“. The indicator Economic Viability measures the solvency of the agricultural operation: (1) at the current situation (using the last three business years), (2) under the scenario of price development (10 budget years) and (3) in view of the planned management and operational needs for future investments in order to remain permanently solvent.

Parameters

- Ev_1 Liquidity reserve
- Ev_2 Level of indebtedness
- Ev_3 Economic vulnerability
- Ev_4 Livelihood security
- Ev_5 Cash flow - turnover ratio
- Ev_6 Debt service coverage ratio

EV Economic viability (Parameters 1)

Ev_1 Liquidity reserve

Goal: The agricultural operation is always able to pay wages, salaries, payments to suppliers, financial liabilities and interest from its own resources.

Content: The relationship between cash and available credit lines at an average of weekly disbursements is assessed (Yearly expenditures divided by 52 weeks).

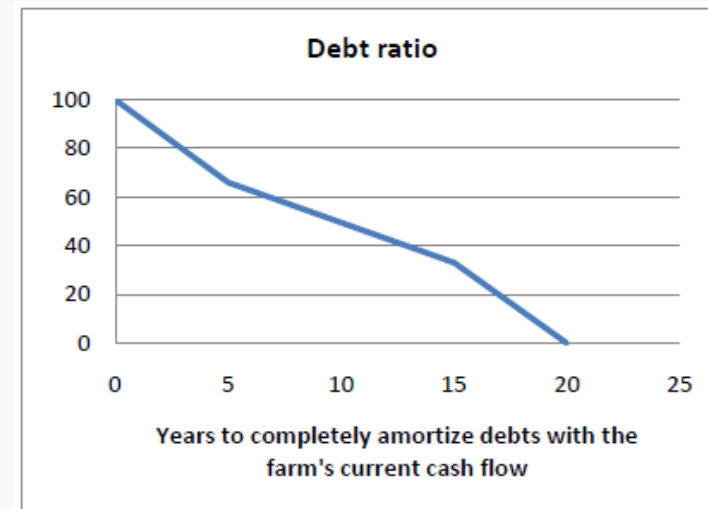
Valuation: 100 points = 40 weeks of liquidity reserve. 0 points = 0 weeks of liquidity reserve. Thresholds can be regionally adapted.

Ev_2 Level of indebtedness

Goal: The agricultural operation can amortize long-term debt with the operating cash flow within a reasonable amount of time, while maintaining the current standard of living and without a disproportionate dependency on borrowed funds.

Content: The number of years to pay back effective debt with the operating cash flow is calculated.

Valuation: 100 points = 5 years to pay back debt with operating cash flow. 0 points = 20 years. Thresholds can be regionally adapted.





EV Economic viability (Parameters 2)

Ev_3 Economic vulnerability

Goal: The agricultural operation has adequate business infrastructure and several pillars of business and is not dependent on the price development of single products or the relation with individual customers.

Content: The degree of dependence is quantified for each business activity or product.

Valuation: 100 points = Whole production infrastructure in good conditions, 2 or more buyer options for all farm branches, positive market development and most important income source is less than 20% of total farm income (bulk risk). Thresholds can be regionally adapted.

Ev_4 Livelihood security

Goal: Household expenses reach at least the regional minimum existence level for farm households. The household expenses clearly exceed the poverty line.

Content: The relationship between private expenses and basic needs are measured.

Valuation: 100 points = Household expenses are at least double the basic needs for the farm household according to the regional subsistence level. Thresholds can be regionally adapted (Subsistence level and factor).

EV Economic viability (Parameters 3)

Ev_5 Cash flow - turnover ratio

Goal: The farm generates a positive operating cash flow over several years. Ordinary maintenance costs, the procurement of production resources, personnel expenses and private expenses of unpaid family members can be financed.

Content: The relationship between operating cash flow and gross result is assessed.

Valuation: 100 points = cash flow – turnover ratio of 20%. 67 points = cash flow – turnover ratio of 10%. Thresholds can be regionally adapted.

Ev_6 Debt service coverage ratio

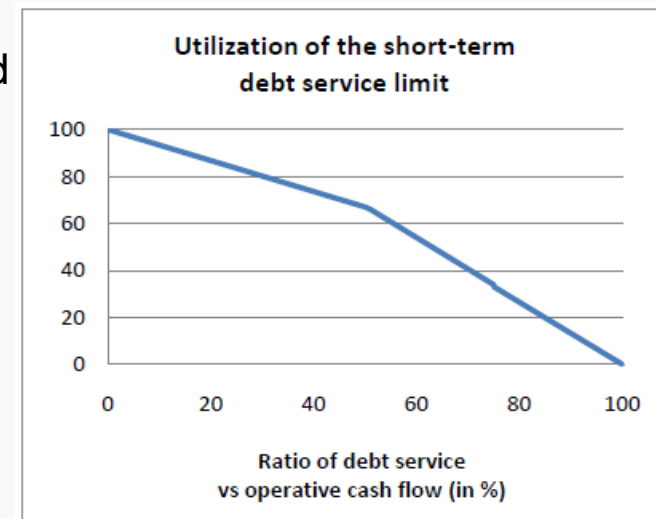
Goal: The agricultural operation has enough financial flexibility to withstand unfavorable market conditions.

Content: The relationship between debt service (interests paid plus mandatory amortization of debts) and operative cash flow is assessed.

Valuation: 100 points = 0% dept service coverage ratio.

67 points = 50% dept service coverage ratio.

Thresholds can be regionally adapted.





FM Farm management (Indicator)

Indicator topic

The management of an agricultural operation is demanding more and more entrepreneurial skills due to increasing market integration. The sustainability principle in itself requires long term planning. Consequently, a sustainable farm operation dictates the adoption of sustainable farm management. This is achieved through a consciously accepted responsibility in relation to people, society and nature. Sustainable farm management is the steering of the operation with the primary objective of maintaining competitiveness in all relevant markets (sale, purchase, personnel, financing etc.) as a prerequisite for the long-term continuation of the business based on a continuous financial surplus. This is to be obtained by an environmentally and socially efficient employment of material, personnel and capital resources. This indicator measures the existence and quality of purposeful, long-term and holistically aligned farm management.

Parameters

- Fm_1 Farm strategy and planning
- Fm_2 Supply and yield security
- Fm_3 Planning instruments and documentation
- Fm_4 Quality management
- Fm_5 Farm cooperation



FM Farm management (Parameters 1)

Fm_1 Farm strategy and planning

Goal: The farm has a long-term development strategy with which short and medium term actions are aligned.

Content: The existence and sustainability of a long-term development strategy is assessed.

Valuation: 100 points if there is a clear, long-term development strategy taking into account all aspects of sustainability (ecological, social and economic).

Fm_2 Supply and yield security

Goal: The income from animal husbandry and crop production is stable owing to good management and reliable access to resources.

Content: The resilience of the farm is measured in which the loss of income due to a lack of production factors or external disturbances (environmental, economical and social) is assessed.

Valuation: 100 points = Neither energy, qualified labor, production inputs or water were lacking nor did the farm suffer from severe weather conditions (storms, flooding, drought, lightning etc), diseases, pests, weeds, marketing or the overuse and degradation of resources.



FM Farm management (Parameters 2)

Fm_3 Planning instruments and documentation

Goal: The farm manager uses tools and documentation for a well-planned, professional farm management.

Content: The availability and use of various types of information pertaining to operational resources as well as external expertise and insurance is assessed.

Valuation: 100 points = Documentation concerning plant and animal health, biodiversity, nutrients, water, energy and soil organic matter is available, maintained and actively used. / Work contracts and payrolls are given to employees. / Technical advisors are consulted prior to any major on-farm business changes. / Relevant risks are identified and covered by insurance (including: pension, accident, illness, natural hazards, third-party liability, water, fire etc.).

Fm_4 Quality management

Goal: A comprehensive quality management prevents accidents and food scandals.

Content: The existence and operation of a quality management approach to product, labor and waste disposal are evaluated.

Valuation: 100 points = Marketed products regularly undergo quality testing. / Work security risks are systematically recorded and reduced. / There is a concept for separate waste disposal in use.



FM Farm management (Parameters 3)

Fm_5 Farm cooperation

Goal: Inter-farm cooperation improves economic and environmental efficiency, employs labor at full capacity, reduces work peaks and better distributes works responsibilities.

Content: The degree of cooperation between farms is evaluated. This includes the efficient and careful use of production areas, machinery, buildings and labor; production inputs purchased at a savings and the arrangement of better selling conditions.

Valuation: 100 points = The possibilities for farm cooperation have been evaluated and where possible, been implemented in the following aspects: Land use, traction and equipment, buildings, labor, purchase of means of production, collective marketing.