



**Sustainable management
of agricultural and livestock
operations**

III. Impact areas

A. Sustainable management of agricultural and livestock operations

Agriculture depends to a large extent on the services provided by natural and managed ecosystems. Sustainable agriculture approaches focus on optimizing production while minimizing negative environmental impacts and promoting actions for the protection, conservation, restoration, enhancement, and efficient use of natural resources.

Through sustainable agriculture practices, a balance is sought between the protection of the natural environment, the productivity of agricultural ecosystems, and the satisfaction of the needs of the growing world population by offering decent and resilient livelihoods (FAO, 2015a). Within this sustainability approach components are not individual units, but rather the productive landscape and its impact areas comprise a complex and dynamic system where interrelationships are constantly occurring.

To achieve this vision of agricultural sustainability, it is necessary that intervention strategies are integrated and adaptable to the conditions of each specific context. They require the implementation of sustainable management systems of multidimensional scopes that cover both social and environmental issues, with an emphasis on the identification of production risks and the planning of activities to mitigate those risks.

SAN offers solutions for the implementation of sustainable management systems that allow:

- the implementation of functional social and environmental management systems that can be adapted to the specific characteristics of productive landscapes;
- responsible management of service providers to reduce the indirect impact on ecosystems and natural resources;
- increased productivity through an optimization of resource use;
- the implementation of mechanisms to ensure the traceability and integrity of agricultural and livestock products; and
- the transformation of stakeholders along the supply chain to facilitate continuous improvement and achieve sustainability along the journey.

A.1. Sustainability Goal: Social & environmental management system

Outcomes	ID	Performance Indicators /Best practices
Operations address environmental and social risks to reduce the negative impacts of their activities.	A101	Operations implement a Social and Environmental Management System (SEMS) to organize all the sustainable management actions and measures, including procedures and action plans for the following topics: <ul style="list-style-type: none"> – protection of natural ecosystems (ecosystems and biodiversity); – protection and sustainable use of natural resources (water, soil, energy); – IPM and agrochemical management; – waste management; – occupational health and safety; – workers’ rights and wellbeing; and – community rights and wellbeing.
	A102	Operations review and update the SEMS regularly to accurately reflect the reality of their operations, workforce, and productive systems.
	A103	Operations designate enough time and resources to progressively implement the SEM system.
	A104	Operations map their production plots, roads, and infrastructure, (including protected areas), with clear boundary delineation of the operations' geographic extent.
	A105	Operations have a description of baseline information that includes: <ul style="list-style-type: none"> – total area; total production area and total area of natural ecosystems; – production plots' data, containing but not limited to crop/pasture type/variety; crop/herd density; crop/pasture management practices; annual yields; and - composition of their workforce.
	A106	Operations identify all national and local legislation applicable to their productive activities
	A107	Operations demonstrate actions for compliance with applicable legislation.
	A108	Operations conduct an independent environmental and social impact assessment (ESIA). In cases where there is no applicable legislation for conducting ESIA, thresholds can be defined according to the operation's specific risks.
	A109	If the ESIA detects significant social and environmental impacts, operations implement actions to mitigate such impacts and document them.

Outcomes	ID	Performance Indicators /Best practices
Operations address environmental and social risks to reduce the negative impacts of their activities.	A110	Operations use the data collected during their regular assessments and the ESIA (if applicable) to plan their activities, and to improve and update the SEMs.
	A111	When required by applicable legislation or when operations' activities have negative impacts on the land or resource use rights or collective interest of the communities, operations conduct a Free, Prior and Informed Consent (FPIC) process with local communities as part of the ESIA, to ensure that there is full consent and fair compensation for any loss of access to land or resources.
Workers know how to carry out their tasks efficiently and safely.	A112	Operations implement training activities for management and workers to enable the correct and safe conduction out of their tasks.
	A113	Operations train all their staff during normal working hours and do not apply any wage deductions for the time spent in training activities.
	A114	Operations document and keep records of all training activities, including information about: <ul style="list-style-type: none"> – training topic; – number of women and men trained; and – attestation of each worker that s/he participated in the training.
	A115	Workers demonstrate that they know how to carry out their assigned tasks.

A.2. Sustainability Goal: Productivity management

Outcomes	ID	Performance Indicators /Best practices
Production input use is optimized to improve productivity.	A201	Operations implement a productivity management program ¹ to increase productivity; including activities for: <ul style="list-style-type: none"> – soil conservation and management; – water conservation and management; – integrated pest management; – keeping and updating records of input use (including at least: water, pesticides & fertilizers); – keeping and updating harvest and yield records; – estimating production and yield volumes per production unit; and – calculating results of input use per production unit or per product produced.
	A202	Operations analyze input use and production records annually or after every harvest season to optimize the use of inputs.

¹ A program is considered as a set of related measures or activities with a long-term aim.

A.3. Sustainability Goal: Service providers management

Outcomes	ID	Performance Indicators /Best practices
Operations' service providers have the competences to carry out their work and comply with applicable legislation.	A301	Operations monitor service providers and ensure that they comply with applicable legislation for the work they conduct with or within the operation.
	A302	Operations define monitoring frequencies according to the contracted service type and frequency.

A.4. Sustainability goal: Traceability and product integrity

Outcomes	ID	Performance Indicators /Best practices
Traceability and product integrity are guaranteed throughout the supply chain.	A401	Operations implement a traceability system to monitor the origin, quantities, destinations (buyers) and claims of all products harvested, purchased, in stock and sold for or within the operation. The program ² includes: <ul style="list-style-type: none"> - actions for controlling the reception, processing, mixing, storing, packaging, labelling, delivery, transport, and resale of products coming from operations within the system; - measures to avoid the overselling of product; and - records of all product harvested, purchased, in stock and sold for or within the operation, including also: <ul style="list-style-type: none"> • yield estimation methods and mechanisms for accurate calculations; and • any differences between the total volume harvested and the total volume available.
	A402	If operations sell product as outputs, or buy third-party products as inputs, they keep records of purchase and selling operations and the inputs and products in stock.
	A403	If operations buy third-party products, they keep product receipts that record of the products' origins, including name, and location of producer, date of purchase, type of product and volume.

² A program is considered as a set of related measures or activities with a long-term aim.

Outcomes	ID	Performance Indicators /Best practices
Traceability and product integrity are guaranteed throughout the supply chain.	A404	If operations harvest, purchase, store, pack, label or sell product from third-party operations: <ul style="list-style-type: none"> - actions are implemented to avoid product mixing: products from operations within the system are kept separate from those outside the system during reception, processing, mixing, storing, packaging, delivery, transport, and release, to preserve the product's integrity according to its claim; - products from third-party operations or different claims can be visually identified at any time; - when applicable, operations document conversion factors or processing ratios; and - procedures are implemented and documented to reduce and correct the accidental mixing of products.
	A405	Operations' personnel receive training about traceability and knowhow to preserve product integrity.

A.5. Sustainability Goal: Harvest and post-harvest management

Outcomes	ID	Performance Indicators /Best practices
Harvesting practices ensure product quality and safety.	A501	Operations monitor crop quality, maturity indexes and weather conditions to decide on an optimal harvesting time.
	A502	Operations implement Pre-Harvest Intervals (PHI) as defined in the applied product's MSDS, label or security tag, whichever is more stringent. When two or more products with different PHIs are used at the same time, operations apply the longest interval.
	A503	Operations do not use human sewage, nor untreated manure or wastewaters in any production or processing activities to avoid contamination of crop and production by pathogens. If treated wastewater is used in production and/or processing activities, its use is compliant with the applicable legislation.
	A504	Operations disinfect harvest machinery and equipment to minimize the risk of pathogens transfer between production plots or farms or crop infestation.
	A505	Operations periodically test samples of their harvested products for the absence of pathogens and pesticide residues.
	A506	Operations train all field personnel in charge of harvesting – related activities about product quality and safety practices.
Storage practices and facilities safeguard the products' quality and safety.	A507	Operations store harvested products in safe facilities with: <ol style="list-style-type: none"> access only to trained and authorized personnel; controlled ventilation, humidity, temperature, and pest infestations; and regular cleaning and maintenance activities.

Outcomes	ID	Performance Indicators /Best practices
Storage practices and facilities safeguard the products' quality and safety.	A508	Operations monitor and control pests within storage facilities minimizing the risks of product contamination, agrochemical's spillage, and the spread of disease vectors.
	A509	Operations keep all storage areas and facilities clean and free from residues and debris.
Processing activities use resources efficiently and safeguard the products' quality and safety.	A510	Operations document all processing processes conducted within their scope, including: <ul style="list-style-type: none"> a. a description of the processing activities; b. a process diagram or flow chart; c. a map or croquis of their processing facilities; and d. the personnel in charge of the processing activities and facilities.
	A511	Operations only use safe water for processing activities. Safe water is: <ul style="list-style-type: none"> a. free of intestinal pathogens; b. free of fecal matter and coliforms; and c. in compliance with the parameters defined by applicable legislations and buyer requirements.
	A512	Operations avoid excessive use of energy during processing by: <ul style="list-style-type: none"> - energy saving practices, - energy efficient equipment and devices, or - training processing staff about energy savings.
	A513	During dehydrating processes, operations monitor product humidity levels for optimized use of energy and compliance with product quality parameters, including shelf-life.
	A514	Operations only use post-harvest products that are authorized by applicable legislation both at the place of processing and the place of product destination. Post-harvest product ³ avoid moisture loss and pest or disease attacks and slow down undesirable chemical changes.
	A515	Operations train their personnel to carry-out cleaning and disinfecting activities.
	A516	Operations ensure that induced or artificial ripening processes are conducted only if necessary and using only authorized products according to applicable legislation on both the place of origin and the place of product destination.

³ Post harvest products widely refer to all substances used to maintain and/or enhance the harvested products quality and slow down natural decay, including fungicides, insecticides, maturity inducers and/or waxes.

Outcomes	ID	Performance Indicators /Best practices
Processing activities use resources efficiently and safeguard the products' quality and safety.	A517	Operations do not use calcium carbide to induce ripening processes.
	A518	Operations implement pest monitoring and management measures to control pests within processing facilities to minimize the risk of product contamination and/or spoilage, and the spread of disease vectors.
	A519	Operations collect all biodegradable organic residues and compost or treat them for reincorporation to the fields or handle them over for third party treatment. Waste treatment from third-partis is considered as a shared responsibility with the operations' management.
	A5020	Operations implement best manufacturing practices for the design, access and maintenance of/to their processing activities and facilities.
The packaging processes reduce environmental impacts and maintain the products' quality and safety.	A521	Operations use biodegradable packaging materials. If using biodegradable packing materials is not feasible, then operations: <ul style="list-style-type: none"> a. avoid using non-recyclable packaging materials; and b. offer alternatives to their buyers and clients to recycle or reuse the empty packaging.
Post-harvest food waste is minimized.	A522	Operations grow different crop varieties for early, mid, and late harvesting considering market demand and agronomic management.
	A523	Operations reduce crop and product losses during harvesting by: <ul style="list-style-type: none"> - harvesting during the coolest time of the day; - keeping recently harvested crop/products in a cool and shady area before storage and/or processing; - minimizing impact of the crop/product dropping to the ground; and - using specialized harvesting tools and machinery.
	A524	Operations implement strict hygiene protocols to control and regulate entrance and movement to and within storage and processing facilities.
	A525	Operations use and/or donate harvested crop/products that do not comply with the required quality parameters by the market but remain safe for consumption.
	A526	Operations use risk analysis to define and monitor critical control points during their harvest, storage and/or processing activities.