



for the health & wealth of the land

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# regenagri Standard Criteria

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### Misuse of Claims

Organisations can make claims related to regenagri only when they have a valid license Agreement with Regenagri C.i.C. Claims shall be made according to the terms of the license Agreement.

Regenagri C.i.C. may suspend the license Agreement temporarily with immediate effect while a suspicion of breaching the terms of the Agreement or the Regenagri<sup>®</sup> standards and principles are being investigated.

In the case of misuse or suspicious misuse of regenagri claims the licensed organisations will receive a written request for clarifications accompanied by a notification of the temporary suspension of the license. The licensed organisation has two weeks from the date of notification to confirm receipt and provide Regenagri C.i.C. with the required clarifications. The temporary suspension shall remain in effect for a maximum period of one month after the licensed organisation has provided clarifications. If the misuse is confirmed, the temporary suspension is extended for an additional three months, during which the licensed organisation shall provide Regenagri C.i.C. with confirmation of correcting and preventive measures. Regenagri C.i.C. will review these corrective and preventive actions and will confirm in writing to the licensed organisation whether the license is reinstated or terminated.

#### Edit history

Version 1.0- May 2020 Version 2.0- August 2021 Version 2.1- February 2022 Version 3.0- October 2022 Version 3.1- January 2024

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Supply chain traceability requirements	08.01.2024	08.01.2024	
Eligibility Criteria	08.01.2024	08.01.2024	
Additional explanatory content	08.01.2024	08.01.2024	

# Log of Updates

# Scope

This document aims to provide insights into the regenagri Standard Criteria. It covers multiple agricultural operations ranging from arable, dairy, livestock, perennial and fruits, fresh products, to grassland management.

This program and the regenargi Assessment Methodology<sup>1</sup> are designed to evaluate a range of farming operations and can be used by different types of organisations including individual farms, groups of farms, cooperatives, agribusiness, and the supply chain (brands, processors, etc.).

# Introduction

 $\sim$  Regenagri helps secure the health of the land and the wealth of those who live on it  $\sim$ 

The regenagri Standard Criteria adopts a landscape approach in agriculture, which is a holistic perspective on farming and land management. This approach considers the broader context of the surrounding environment, recognizing that agricultural activities have significant impacts on ecosystems, natural resources, and the well-being of local communities. It evaluates the entire farming operation, considering different management strategies and practices to assess the farm's regenerative impact. The criteria are supported by practical knowledge of regenerative farming methods gained through hands-on experience, insights from trusted advisors and industry experts, research, and practical guidance from the advisory committee, a group of specialized companies with expertise in different aspects of regenerative agriculture. The advisory committee is responsible not only for the technical development of the program but also provides crucial expertise to support farms and organisations in adopting regenerative practices.

<sup>&</sup>lt;sup>1</sup> Available by sending an email to <u>info@regenagri.org</u>

The regenagri Standard Criteria supports the measurement of key performance indicators through on-farm data. These practices all have a direct effect on regenerating soil health, biodiversity and water courses while reducing emissions and sequestering carbon. Depending on the needs and objectives of the stakeholders, the regenagri Standard Criteria is intended to be used mainly as:

- 1. Standard Criteria for third-party assessment and certification.
- 2. Criteria to be used as a reference for the implementation of regenerative agricultural projects.
- 3. Benchmarking between different regenerative schemes.
- 4. Carbon credit development projects as described in the regenagri Carbon Standard, available at <u>https://regenagri.org</u>.

# Regenagri Assessment methodology

The regenagri Standard Criteria have been developed to measure and monitor the implementation of regenerative practices and their agroecological outcomes. The regenagri Assessment Methodology evaluates the degree of regeneration applicable to different agricultural operations including arable, livestock, dairy, trop fruits, and fresh produce.

The regenagri assessments are are based on a contextualized method whereby each of the criteria is assessed based on the farm-specific context, including climate, soil type, type of operation and impact potential.

While the regenagri Standard Criteria document explains which and how criteria are assessed,, the regenagri Assessment Methodology explains how each assessment is contextualised to specific climate, type of soil and type of operation. Once all the items are evaluated, the regenagri score is calculated. The regenagri score provides the measure of the regenerative level of the farm.

For certification purposes, a minimum score of 65% is required to be certified and improvement of the score is required by the farm to maintain the regenagri certification. The practices and outcomes are monitored annually.

The continuous improvement requirements are are described in the regenagri Assessment Methodology.

The regenagri Standard Criteria will be periodically reviewed and revised following a stakeholder consultation process. Details on the regenagri methodology are explained in the regenagri Assessment Methodology document.

For additional details, kindly reach out to us at info@regenagri.org.

# Conservation commitments

Organisations seeking affiliation with Regenagri C.i.C. must pledge to safeguard land with high biodiversity value, high carbon stock, or other HCVs, ensuring no involvement in the conversion of such land since January 1<sup>st</sup>, 2015 (see in References other cut-off times used as benchmark). This will be verified through either satellite images, maps, or photos. The organisation, as applicable, shall provide a public commitment or sign a self-declaration<sup>2</sup> stating that it has not been involved in activities destroying the aforementioned values or in activities destroying or converting natural habitats into agricultural production.

When agricultural activities are adjacent to HCV areas the organisation shall carry out a risk assessment about the HCV and implement mitigation measures, as required.

<sup>&</sup>lt;sup>2</sup> Available by sending an email to <u>info@regenagri.org</u>



#### Acronyms

- CEC Cation Exchange Capacity
- **CFT** Cool Farm Tool
- **CO2** Carbon Dioxide
- CPP Crop Protection Product
- **DMI** Dry Matter Intake
- DNA Deoxyribonucleic Acid
- FAO Food and Agriculture Organisation
- GM feed Genetically Modified feed
- GHG Greenhouse Gases
- Global GAP Global Good Agricultural Practice
- HCV(s) High Conservation Value(s)
- HHP Highly Hazardous Pesticide
- IPM Integrated Pest Management
- IPCC International Panel on Climate Change
- KBA- Key Biodiversity Area
- LEPA Low Energy Precision Application
- N Nitrogen
- **NPK** Nitrogen-Phosphate-Potash (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O)
- N<sub>2</sub>O Nitrous Oxide
- OM Organic Matter
- **PPE** Personal Protective Equipment
- SOC Soil Organic Carbon
- SOM Soil Organic Matter
- TC Transaction Certificate
- WHO World Health Organisation

### Definitions

Agricultural land - areas designated for the cultivation of both arable and perennial crops.

*Applicable land-* all types of operation that will be subject to a score under the specific criteria. All types of operations that are not mentioned will not be considered within the final score.

*Area with high biodiversity value-* areas identified by IUCN as crucial for threatened species, unique species, key ecological functions, highly threatened ecosystems, or designated as KBAs or HCVs.

*Area with high conservation value-* geographical space possessing outstanding attributes like significant biodiversity concentrations, large landscape-level ecosystems, critical habitats for threatened species, importance for ecosystem services, or cultural/spiritual significance. These areas undergo a participatory identification process and receive special protection measures for longterm conservation.

**Buffer strips-** the vegetated region adjacent to water courses and wetlands, also known as riparian zones.

**Conservation area** – areas that are exempt from agricultural activities, ensuring their preservation and fostering a thriving ecosystem. These areas encompass a wide spectrum of natural environments, from hedgerows and windbreaks to undisturbed forests and grasslands, serving as havens for biodiversity and ecological balance.

**Conservation Tillage-** a system that minimises soil disturbance (0-20 cm) during field preparation which can help to preserve SOM-contents, facilitate nutrient cycling, and improve water dynamics. The four main types of conservation tillage are mulch tillage, ridge tillage, zone tillage, reduced tillage (tillage which does not turn the soil over) and no-tillage (direct drilling). Along with tillage practices, conservational tillage also involves the presence of crop residue management depending on the context of each farm operation (residue integration, soil cover, compost, manure).

**Conventional Tillage-** a tillage system that uses cultivation for seedbed preparation and weed prevention. This includes ploughing and harrowing, where soil is inverted, incorporating and destroying plant debris and exposing soil pests. The average depth of conventional tillage ranges between 15-50 cm. The crop residues are often removed, and soil is left bare.

*High-efficiency irrigation –* a set of techniques and practices aimed at optimizing water use in agriculture. It includes precision irrigation methods like drip systems, smart irrigation management based on data and weather conditions, and the use of water-saving equipment. Mulching, soil moisture monitoring, and drought-resistant crops also contribute to efficient water usage. Additionally, recycling water, maintaining infrastructure, and providing education to farmers are key components of high-efficiency irrigation.

*Holistic Grazing Plan-* a comprehensive strategy designed to ensure that livestock are positioned appropriately, exhibiting optimal behaviour, and adhering to a specific schedule. This plan seam-lessly integrates livestock production with crop, wildlife, and forest production for a holistic approach to land management.

*Land sharing-* a land management approach that involves the integration of biodiversity conservation and agricultural production within the same land unit. This can be achieved through a variety of methods, such as intercropping, agroforestry and silvopastoralism.

*Land separation*- a land management approach that involves the spatial separation of biodiversity conservation and agricultural production. This can be achieved by setting aside specific areas for conservation, such as national parks and nature reserves.

*Livestock unit*- a standard measurement unit that allows for the aggregation of the various categories of livestock for them to be compared.

*Nature-based and organic fertilisers*— fertiliser coming from nature-based sources, naturally produced, or elabourated or extracted from organic matter or the earth.

**Nutrient management plan-** a systematic strategy designed to efficiently regulate nutrient use, aiming to conserve financial resources and mitigate environmental risks. It shall include both a farm record sheet (for the whole farm), and a field record sheet (for each field) which shall include nutrient applications and soil analysis, field areas and farm map, crop to be grown and previous crop grown, soil type, soil nutrient analysis, a manure/litter/slurry application map, details of all imports and exports of organic manure including manure/slurry/litter.

**Perennial crop-** plants that live for more than two years and produce a harvest for several years. They offer several advantages over annual crops, including resilience to environmental stress, reduced tillage needs, and deeper root systems for carbon sequestration.

*Peatland*- ecosystem characterized by water-saturated conditions that favour the accumulation of organic matter.

**Primary forest-** a forest ecosystem that has never been significantly altered by human activities or disturbances. It is characterized by mature trees, a diverse array of plant and animal species, and a complex ecological structure that has developed over an extended period without substantial human interference. It is also known as old-growth or virgin forest.

**Rotation Plan-** A structured agricultural strategy outlining the designated crops to be planted on each field and their corresponding planting schedules. This plan, formulated with a minimum 3-year term vision, considers various species and strategically incorporates their rotation to enhance yield, promote soil health, and bolster overall farm resilience, with a reduced reliance on synthetic inputs.

**Rotational Grazing Management Plan-** a plan that subdivides the ground and matches the allocated area with stock, including numbers of animals and days on each plot.



**Soil Management Plan-** a soil management plan shall be field by field and aid the identification and management of soil related issues. Such a plan shall take into consideration local climate and rainfall patterns, soil type, and crop type. It shall include field and soil identification and management issues and proposals.

*Synthetic fertilisers*- fertiliser manufactured synthetically containing one or more of the nutrients necessary for plant growth.

*Water Management Plan-* for farms using irrigation a plan shall include the list of irrigation efficiency measures, good watershed management in local context (climate, soil, type of farm operation).

*Wetland-* an area of land that is either covered by water or saturated with water. The water is often groundwater, seeping up from an aquifer or spring. A wetland's water can also come from a nearby river or lake.

# Standard Criteria for Certification

# Eligibility criteria

The below listed criteria are a prerequisite for organisations wishing to join the regenagri program. Compliance to these criteria is mandatory for regenagri certification and must be confirmed for the period from the1<sup>st</sup> of January 2015 or earlier. The verification of the compliance to the eligibility criteria shall be done by the certification body prior to the registration of the regenagri project.

The organisation subject to a regenagri assessment shall:

- Present their conservation commitment and provide evidence of its implementation. Farm group managers may implement this as part of their internal audit procedure.
- Comply with local applicable legislation and demonstrate in the assessment how the farm is monitoring and implementing legislative updates. This includes environmental, food safety, labour, animal welfare, pesticide, chemical, land use, and water usage regulations, which may vary by country.
- Consider and understand that primary forest or other forested land that has lost its status as forest land from January 2015 (see in References other cut-off times used as benchmark) onwards (conversion, enlargement of adjacent agricultural land) cannot be included in a regenagri project.
- Consider and understand that peatlands and wetlands (high biodiversity land) that have lost status after January 2015 (see in References other cut-off times used as benchmark) cannot be included in a regenagri project.
- Demonstrate the status of the land before January 2015 (see in References other cut-off times used as benchmark), regardless of what the status of the land is at the time of initial validation.
- Consider and understand that areas with high biodiversity or HCV status, which are subject to official protection, are not regenagri project areas from the point of view of nature protection.

The types of evidence that are expected to be presented to verify the eligibility criteria include:

- Date verified satellite imagery.
- Official maps of the farm and land area with dates or farm records (digital or hardcopies).
- 3D module mapping and intelligent mapping software.
- Signed commitments and legal requirements around conservation and deforestation.
- Local government documents.
- Audit records from a third party.

# Labour, Health, Safety & Community

References used for the Labour, Health, Safety requirements are listed in the Reference section.

# Risk classification

A risk classification system is implemented based on the <u>World Bank's Worldwide Governance</u> <u>Indicators (WGI) rankings</u>. This approach mirrors other social standards like SA 8000 and amfori BSCI. Countries are categorized into risk levels according to their WGI scores, each requiring a different interview methodologyand document review guidelines.

# 1. Child Labour and Young Workers

#### <u>Requirements</u>

- The farm maintains a strict adherence to the minimum legal working age of 15, as established by international labour standards – or older as defined by the specific country's laws – and takes care to adhere to regulations governing the working hours of young workers (such as night or overtime work), prioritizing their safety, health, and overall well-being.
- Under no circumstances are young workers (any person under 18 years of age) permitted to engage in hazardous work conditions (ref. International Labour Organisation), in accordance with the farm's standards, local regulations, and international labour laws.
- In addition, the farm meticulously maintains accurate and up-to-date records for all workers, documenting their ages, working hours, and educational status to ensure compliance with relevant standards.
- Young workers are granted opportunities for education and access to schooling, allowing them to strike a balance between work and learning.

#### Additional requirements in high-risk regions

• The farm expressly bans the use of child labour, ensuring that no individual below the legal minimum working age of 15 per international standards – or older, per country-specific laws – participates in any farm-related activities or supply chain processes. To enforce this policy, the farm implements a stringent verification process to confirm the ages of all workers, particularly those who appear youthful, thereby preventing the employment of underage labour.

# 2. Freely Chosen Employment

#### <u>Requirement</u>

• Each worker is provided with a written employment contract that transparently outlines the terms and conditions of their employment, presented in a language they understand, and with readily accessible access to their contracts.

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- For workers who lack literacy skills and in case of verbal agreement all contractual terms and conditions of their employment, shall be explained to them verbally and documentation shall be in place to confirm the employment.
- All work must be voluntary and workers are free to leave work at any time or terminate their employment.

#### Additional requirements in high-risk regions

- The farm ensures that all its workers are provided with employment opportunities that are chosen voluntarily, free from any form of coercion, intimidation, or deceptive recruitment practices.
- The farm strictly prohibits any form of forced labour, be it debt bondage, indentured labour, prison labour, state-imposed forced labour, or any situation where workers are compelled to work against their will.
- Additionally, workers are not required to surrender any personal identification or travel documents.

# 3. Workplace Violence and Harrassment

#### <u>Requirement:</u>

• The farm has zero-tolerance against workplace violence and harassment. This includes any form of corporal punishment, physical, sexual, psychological or verbal violence, harassment or abuse, or any other types of activity which create an intimidating, hostile or offensive work environment.

# 4. Freedom of Association and Collective Bargaining

#### <u>Requirements</u>

- The farm respects the fundamental right of its employees to join, establish, or abstain from joining labour unions, workers' associations, or other organisations of their choosing.
- In a resolute commitment to these principles, the farm refrains from any interference, obstruction, or prevention of employees in the exercise of their rights to freedom of association, collective bargaining, or peaceful assembly. This includes intentional discrimination and harassment of representatives or members of a union.
- The organisation ensures that all employees are well-informed and educated about their rights concerning freedom of association and collective bargaining, providing clear guidance on the procedures for exercising these rights and guaranteeing that they will not be exposed to any retaliation if they exercise any of these rights.
- In countries where the local law does not permit the formation and operation of worker organisations or trade unions, the farm shall support, provide, and must not interfere with, alternative means for worker representation and communication and dialogue to discuss and negotiate the conditions of employment.

# 5. Wages and Benefits

#### <u>Requirements</u>

- The legal minimum wage shall be paid by the farm. Where possible, the wage shall exceed legally mandated minimums and provide a sufficient wage to ensure a decent standard of living.
- To uphold transparency, a clear payment system is established, and workers are provided with payslips detailing how wages are calculated and any additional benefits, including overtime pay, bonuses, or incentives.
- The frequency and timing of wage payments are specified, offering employees consistency and predictability in this regard The farm will ensure that all workers are paid on time, on a regular basis (at least once per month).

#### Additional requirements in high-risk regions

- Any wage deductions, if applicable, are executed in accordance with the law and communicated to employees transparently. Employees must consent to any wage deductions made.
- Deductions may be made from salaries to pay for services provided to the employee and shall not include costs for essential services to employees required to perform their work (e.g. protective equipment); the amount deducted must be in line with the actual cost incurred. nor deduct their cost from the wages paid to the worker. Salary deductions must not be used for disciplinary purposes.
- Additionally, the deductions shall not be so great that wage payments do not provide sufficient money to cover workers' basic needs.

# 6. Working Hours

#### <u>Requirements</u>

- The farm diligently establishes and adheres to standard working hours, ensuring that working hours comply with both local labour laws and industry norms.
- Procedures are in place to compensate employees at a premium rate for any overtime work in strict compliance with local labour regulations, always maintaining the principle that overtime is voluntary and kept within the limits as established by national law for the agricultural sector.
- The farm prioritizes the well-being of its employees by providing adequate rest periods, including daily breaks (regular short breaks, meal breaks) and a minimum of 8 hours of rest within a 24-hour period, and providing weekly days off (one full day off a week), in adherence to legal requirements and the specific operational needs of agricultural activities.

# 7. Health & Safety

#### <u>Requirements</u>

- The farm prioritizes workplace safety through a series of comprehensive measures. Regular risk assessments are conducted to proactively identify and address potential hazards, ensuring the well-being of employees.
- Hazardous materials and substances are meticulously and accurately labeled, and information on safe handling is readily accessible to all workers.
- The farm has established detailed emergency response plans, encompassing accident, injury, and natural disaster scenarios, with clearly defined roles and procedures to be followed.
- Workers receive training in basic first aid procedures, and easy access to first aid supplies is guaranteed, with a well-defined plan for addressing medical emergencies.
- Workers are provided with suitable personal protective equipment (PPE) for their tasks, and a system is in place to inspect, maintain, and replace PPE as necessary. Furthermore, all tools, machinery, and equipment are diligently maintained and undergo safety inspections.
- Operators are well-trained and authorized to use specific equipment.
- The farm takes measures to prevent heat stress and protect workers from extreme weather conditions, offering access to shade and regular hydration breaks.
- The farm provides access to safe and hygienic sanitation facilities and to potable/drinking water.
- Ongoing safety training and awareness programs are conducted to educate workers about specific hazards relevant to farming (including the handling of hazardous materials), thereby fostering a secure and protective working environment.
- The farm maintains clean, well-ventilated restroom facilities equipped with essential sanitation supplies, hand-washing facilities and adequate lighting.

#### 8. Subcontracting

#### **Requirements**

- The farm has established a comprehensive approach to subcontractor management, with a strict requirement that all subcontractors adhere to farm standards and regulations.
- In line with a commitment to equitable treatment, subcontracted workers are entitled to the same rights, working conditions, and protections as those directly employed by the farm.
- The contracts with subcontractors are explicit, detailing the terms, conditions, and responsibilities of each party, including stringent expectations for quality and safety.

# 9. Community Involvement

#### Applicable land- ALL

**Introduction & benefits of implementation-** It is an important component of regenerative agriculture that farms participate in community schemes so that all stakeholders are rewarded and participate collectively to the development of the food system at a local and global scale. It allows the knowledge and benefits of this type of farming practice to be shared, allowing regenerative agriculture to scale faster and contribute to climate action and nature restoration goals at landscape and planet level.

**Objectives-** Increase social cohesion and livelihoods, restore nature-human relationships, and spread knowledge about regenerative agriculture.

*Guidance-* Farms should adapt to each specific context and take part in initiatives that work best for their own situation.

**Requirements-** Farms need to show proof of participation in local development or global sustainability commitments related to agriculture. Records or evidence that the farm is actively participating in schemes is needed as proof.

Examples of community involvement can include partnership initiatives dedicated to regenerative agriculture, women's empowerment in agriculture, youth employment, end products consumed within 100km, research schemes or partnerships with schools or universities, programs involving indigenous communities, agriculture education programs for children, and engagement initiatives to increase the revenue for farmers, knowledge sharing campaigns, ESG (environment, social, governance) schemes on farm and supply chain, charity programs, food waste reduction scheme, premium schemes aimed at increasing economic benefits for farms whilst rewarding environmental stewardship.

#### <u>Scoring based on</u>

- Farm is not involved in any community activities.
- 1 initiative is carried out.
- 2 initiatives are carried out.
- 3 or more initiatives are carried out.

#### The score is subsequently influenced by the specific context of each farm.

*Contextualisation of the assessment-* Community involvement holds universal significance in agriculture and is accorded equal importance across all contexts.

# Supply Chain & Traceability Requirements

# Transaction Certificates requirements

The regenagri supply chain standards require segregation as traceability approach. The segregated approach requires that the regenagri certified products are kept separate from non-regenagri certified products at every stage of production, processing, roosting, and manufacturing throughout the supply chain. Traceability and other supply chain requirements are provided in the regenagri Content Standard and, when applicable, in the crop-specific regenagri Chain of Custody Standard.

A regenagri Transaction Certificate for a given shipment of products (or multiple shipments) is a document that a certification body issues, upon verification, and that confirms that products being sold or shipped from one organisation to another comply with the regenagri Standards and therefore may be treated as claimed materials by the receiver.

Transaction Certificates contain information regarding the products, sales and shipping information and information about the supply chain up until that point.

- Farm certified to the regenagri Standard can sell products with regenagri certification claims.
- The certification of the supply chain is carried out according to the regenagri Content Standards and the applicable crop-specific standards, following a Chain of Custody system.
- Only shipments of products approved under Transaction Certificates can be claimed as regenagri certified.
- The first processors of products (when non coinciding with the organisation holding the farm certification) shall request the supplier farm to provide them with Transaction Certificates confirming the certification of the purchased materials.
- Transaction Certificates shall be requested to the approved Certification Body by the seller of regenagri certified materials. The Transaction Certificates are issued by the approved Certification Body upon review of the application and supporting documentation.

#### Transaction Certificates include the following information:

- TC number.
- Certification Body issuing the TC.
- Seller, buyer, consignees.
- Quantity of product sold.
- Country of dispatch / destination.
- Last processing organisation (if applicable).
- Certification details of the seller organisation (certificate number).
- Products and shipment details.
- Other information may include impact data, as applicable (note: impact claims can be made only if certified in the Transaction Certificates).

# Regenerative Crop Production

# Cover-cropping

### Applicable land- ARABLE, FRESH PRODUCE, SOFT/TOP FRUITS

*Introduction & benefits of implementation-* Cover crops can be planted between the harvest of one cash crop, and the planting of another on the same piece of land. Examples of cover crops are mustard, wheat, brassica, phacelia, rye, buckwheat. These crops can encourage soil and crop health in different ways, including:

- Improving the soil's soil organic matter, structural and hydraulic properties and mitigating erosion. Stronger soil structure leads to higher water retention capacity, lower compaction, lower run-off and erosion, prevents nutrient leaching, and contributes to overall soil health and SOM dynamics.
- Biologically manipulating the rhizosphere, e.g., by stimulating a higher microbial biodiversity in their soil, a key pillar at the core of regenerative agriculture. Improving soil biology enhances nutrient efficiency and helps fight pests and weeds.
- Providing vital habitats for birds and insects, an important component for the development of local biodiversity and natural capital.

Objectives- Improve soil health, increase SOM, mitigate erosion.

**Guidance-** To maximise the agronomical and ecological benefits from cover crops, they should be planted for a minimum of two months. Multiple termination methods can be chosen after the growing period. Methods depend on the local climate, soil type, available machinery and the crops that will follow the cover crop. A diversity of species in the mix should be present to improve resilience, soil health and biodiversity. Things to keep in mind when considering implementation and choice of species are: weather conditions, time of sowing, species (i.e., legume, brassica), and the desired purpose of the cover crop (e.g., for N building, or animal fodder). Additionally, farms are encouraged to incorporate at least one species of leguminous crops.

Requirements- The farms shall apply cover crops on soils that would otherwise be bare.

#### <u>Scoring based on</u>

- Occurs on <10% of applicable land.
- Occurs on 10–30% of applicable land.
- Occurs on >30-50% of applicable land.
- Occurs on >50% surface area and minimum 5 species (and at least one leguminous plant) are present in the mix.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Cover cropping varies in difficulty and impact on ecosystem services based on climate, soil type, and farming operations. Arid climates pose the greatest challenge, while sandy soils present more difficulties. Despite differences, effective management practices make cover cropping feasible across diverse conditions. In terms of impact, arid climates

benefit significantly from cover cropping, addressing challenges related to water scarcity and fragile ecosystems. Positive effects, such as improved soil health and biodiversity support, remain consistent across various farming operations, making cover cropping valuable for sustainable agriculture.

### Conservation Tillage

#### Applicable land- ARABLE, FRESH PRODUCE

Introduction & benefits of implementation- Conservation tillage involves practices that minimize soil disturbance and maintain a significant portion of crop residues (usually at least 30%) on the soil surface to control erosion, preserve moisture, and promote soil health. This method can include systems like mulch tillage, strip tillage, tined tillage, ridge tillage, zone tillage, reduced tillage and no-tillage., each with its unique characteristics. The depth of soil disturbance is limited to a maximum of 20 cm, and the specific percentage of residue retention may vary depending on factors such as crop type and local practices. Overall, conservation tillage contributes to environmental sustainability and enhances soil quality while supporting agricultural goals. While the initial investment in new machinery can be significant, the reduction of costs can help negate the initial investment in the long term (e.g., outgoings on fuel and labour). Smallholder farmers also employ conservation tillage techniques, often utilizing traditional methods such as hand tilling or draft animals like oxen, to minimize soil disturbance, prevent erosion, retain moisture, and preserve soil structure. This approach aims to enhance sustainability and productivity while minimizing labour and resource requirements. The specific methods and tools used depend on local traditions, available resources, and crop varieties, all with the overarching goal of achieving a balance between agricultural production and environmental conservation. Lastly, conservation tillage has a strong body of scientific research proving its capacity to sequester and store carbon in the soil, contributing to climate change mitigation.

Objective- Boost soil's biology, increase SOM, enable nutrient cycling.

**Guidance-** Conservation tillage practices are further strengthened when combined with the cultivation of cover crops, resulting in synergistic benefits that enhance both agronomic and environmental outcomes. Similarly, integrating crop rotations and a carefully planned fertilization strategy can maximize system efficiency and productivity. However, it's important to note that the applicability of these practices may not extend to tuber and root crops that require only crop residue management. Additionally, it is important to note that direct planting methodologies fall under this criteria.

**Requirements**- Farms shall apply conservation tillage practices on as much arable cropland as possible. Perennial croplands are excluded from this scoring.

#### <u>Scoring based on</u>

- Conservation tillage practices are not used on any land.
- Conservation tillage practices are used on 0% -25% of applicable land.
- Conservation tillage practices are used on >25-50% of applicable land.
- Conservation tillage practices are used on >50% of applicable land.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Conservation tillage is adaptable across diverse conditions, with its difficulty hinging on local factors, equipment, and farms' expertise. In arid and tropical climates, its implementation significantly enhances ecosystem services by mitigating soil erosion and improving soil structure, contingent on proper practices. Soil type has a minimal impact, as the primary goal is to enhance overall soil health, yielding consistent positive effects. Notably, in agroforestry and top fruits operations, conservation tillage has a lower impact on ecosystem services due to the less intensive tillage practices.

# Crop Rotation

#### Applicable land- ARABLE, FRESH PRODUCE

*Introduction & benefits of implementation-* By implementing two or more crops in a crop rotation, farms can experience higher resistance to diseases (fungi, bacteria, and virus), better weed management (without inputs), higher water conservation levels, better fertiliser efficacy, and limited soil erosion, which can all lead to improved yields.

**Objectives-** Yield optimization and stabilization, boost to soil's biology, pest and disease control, reduced need for synthetic inputs, and improved water infiltration, soil moisture, carbon content, and crop productivity.

**Guidance-** The choice of crops for rotation should be tailored to each farm's unique situation and incorporated into a well-defined crop rotation plan. It is recommended, where feasible, to integrate at least one leguminous plant as a nitrogen fixer, particularly when utilizing diverse seed mixes that may include species like Brassicaceae, Poaceae, Solanaceae, or Umbelliferae. The incorporation of a wider range of crops in the rotation leads to a broader spectrum of microbial life within the soil. Cover crops and inter-cropped crops are also included in the overall count of crops in rotation. with perennial crops being exempt from scoring considerations.

**Requirements-** Farms shall implement a broad crop rotation across at least 75% of their agricultural land. Failure to do so results in non-compliance with the specified requirements.

#### <u>Scoring based on</u>

- 2 or less crops are in the rotation plan.
- 3 crops are in the rotation plan.
- 4 crops are in the rotation plan.
- 5 crops are in the rotation plan (a crop cannot be planted two times in a row in the same field).
- >5 crops are in the rotation plan. (a crop cannot be planted two times in a row in the same field).

**Contextualisation of the assessment-** Crop rotation faces greater challenges in arid climates due to water scarcity, but adaptation is crucial for sustainable land use, involving careful crop selection and water management. The difficulty is not significantly influenced by soil type or farming approach. Successful crop rotation in arid climates can notably impact ecosystem services, enhancing soil quality and productivity, with consistent benefits across climates, soil types, and farming approaches.

# Multi-cropping & Inter-cropping

#### Applicable land- ARABLE LAND, FRESH PRODUCE, TOP FRUITS, WOODLAND

**Introduction & benefits of implementation-** Multi-cropping and inter-cropping are distinct farming practices. Multi-cropping refers to growing multiple crops on the same field, not necessarily in close proximity, while inter-cropping involves planting different crop species closely together on the same field simultaneously. The presence of diverse vegetation within the cropland contributes to stronger soil biodiversity below ground. Each crop species benefits from the ecosystem services provided by others above ground. This approach has direct positive effects on nutrient cycling capacity, pest resistance, and weed suppression, ultimately resulting in higher yields and soil health compared to monocultures.

**Objectives-** Diversify farm's income, increase biodiversity, pest and disease control, yield stabilisation.

**Guidance**- Research and field trials around the topic of intercropping have, in the past, been focused on vegetable crops. New trials are showing positive results in conventional arable crops, such as beans, oats, maize, and soyabean. Inter-cropping is sometimes also referred to as "companion planting or cropping". Farms are encouraged to incorporate at least one species of leguminous crops.

Requirements- Farms shall apply intercropping to a significant percentage of its cropland.

#### <u>Scoring based on</u>

- Inter-cropping occurs on <2% of applicable land.
- >2-4% of applicable land is incorporated into an inter-cropping approach.
- >4-10% of applicable land is incorporated into an inter-cropping approach.
- >10% of applicable land is incorporated into an inter-cropping approach.

#### The score is subsequently influenced by the specific context of each farm.

*Contextualisation of the assessment-* Inter-cropping is less suitable for livestock and dairy operations, with arid climates posing heightened challenges. While the overall concept is adaptable, specific challenges and outcomes may vary based on factors like crop selection and local conditions.

# Perennial Cropping

#### Applicable land- ALL

**Introduction & benefits of implementation-** Perennial crops are plants that live for more than two years and produce a harvest for several years., They range from perennial grasslands, shrubs, fruit and nut trees, wood trees, and biomass perennials. Also, it's important to note that hedgerow trees used for wood production are included in this criteria, which holds particular significance for smallholder farmers who depend on hedgerows as a biomass source. Perennials also offer security and resilience as they produce crops, timber, and biomass continuously for years, whilst simultaneously creating an agroecosystem that is more resistant to extreme weather events and capable of storing greater amounts of carbon in both their deep root systems and the above-ground biomass.

An example of a system that profits from incorporating perennials is agroforestry. Agroforestry is where agricultural systems incorporate the cultivation of trees, this could be within the croplands (alley cropping/silvoarable) or using trees to provide food, shelter, and sometimes housing for livestock (silvopasture). Perennial crops can also be grown for biofuel production (with suitable plants being giant miscanthus, vetiver, and bamboo).

**Objectives-** landscape diversification, intra-farm microclimate contribution, natural protection against pests and diseases, improvement of water and nutrient dynamics, better soil structure, and increase in biodiversity.

**Guidance**- The type of perennial suitable for each region varies greatly. Before planting, the farm should research the most suitable varieties and/or request advice from an advisor. Funding and planning for the planting of perennial crops can be difficult, which is why farms should look to incorporate perennials when and where possible, within the scope of the farm operation. When the farming operations are fully composed of perennial crops, the agricultural land dedicated to perennials shall not be higher than 85% to avoid full perennial systems. Farms are also advised to maximize the diversification of their perennial crops.

*Requirements*- Farms shall be able to show a nutrient management plan composed of sourcing, application method, and rate of application for all the fertilizers used.

#### <u>Scoring based on</u>

- 0-2% of applicable land is dedicated to perennial cropping.
- >2-5% of applicable land is dedicated to perennial cropping.
- >5-15% or >85-100% of applicable land is dedicated to perennial cropping.
- >15-85% of applicable land is dedicated to perennial cropping (perennial pastures are excluded from this).

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Perennial cropping faces challenges in arid climates but can succeed with strategic water management. The difficulty is consistent across soil types and farming operations. It has a more significant impact in arid climates, benefiting soil health and biodiversity, particularly on sandy soils. In agroforestry and topfruits operations, while having a relatively lower impact, perennials still contribute positively to ecosystem services by supporting biodiversity and enhancing soil health.

# Natural fertiliser strategies

### Applicable land- ARABLE, FRESH PRODUCE, SOFT/TOP FRUITS, PASTURE

*Introduction & benefits of implementation-* Natural fertiliser strategies aim to optimize yields, enhance fertilizer efficiency, increase biodiversity, and prevent nutrient leaching. Soil enriched with natural and organic fertilisers fosters beneficial microbial life and organic material, promoting soil biodiversity, carbon storage, and efficient nutrient cycling.

**Objectives-** Yield optimization, improve fertiliser efficiency, increase biodiversity and SOM, avoid nutrient leaching.

**Guidance**- Natural and organic sources can include organic fertilizers, compost, manure digestates, or any other compound derived from nature without the need for synthetic processing. The application of compost, manure, digestate, and other organic fertilizers replenishes essential plant nutrients into croplands. The regenagri Standard Criteria strongly promotes the production of natural fertilizers on-farm and recommends the use of biostimulants and beneficial microbes such as fungi and bacteria, which are not fertilizers but rather inoculants that enhance microbial activity in the soil, thereby enhancing nutrient uptake by plant roots.

*Requirements*- Farms shall be able to show a nutrient management plan composed of sourcing; application method, and rate of application for all the fertilisers used.

#### Scoring based on

- <25% of the NPK input is sourced from organic or natural origins.
- 25-50% of the NPK input is sourced from organic or natural origins.
- >50-75% of the NPK input is sourced from organic or natural origins.
- >75% of the NPK input is sourced from organic or natural origins.

**Contextualisation of the assessment** - Natural fertilizer strategies have consistent difficulty and impact patterns across climates, soils, and operations. Sourcing challenges are primary, uniform across climates and soils. Transitioning to natural fertilizers is more challenging for crop-based operations. In terms of impact, tropical climates show lesser effects, while sandy soils benefit more, especially in tropical regions. Regardless of the operation type, adopting natural fertilizers offers consistent benefits, reducing chemical inputs and improving soil health.

# Synthetic Fertilizer Reduction

#### Applicable land- ARABLE, FRESH PRODUCE, SOFT/TOP FRUITS, PASTURE

**Introduction & benefits of implementation-** The use of synthetic fertiliser on land has a number of implications on soil health. Synthetic fertiliser use can lead to a reduction of OM and microbial life as well as altering the pH of the soil. There are also implications on the wider environment including nutrient leaching, contamination of water sources, as well as release of GHG emissions while producing them.

**Objectives-** Reduce dependency on synthetic fertiliser, boost soil's biology, higher nutrient cycling, avoid nutrient leaching and watershed pollution.

**Guidance-** Spraying should be minimised where possible and must also avoid areas of natural habitat and or conservation. Planning and monitoring nutrient inputs align with country regulations for resource efficiency and environmental protection. A key practice involves a nutrient management plan, adhering to the 4R concept- "Right Source," "Right Rate," "Right Time," and "Right Place." This approach entails precise fertilizer selection, accurate application rates, timely application, and strategic placement, ensuring efficient and sustainable nutrient management in agriculture while aligning with plant physiological needs and soil analysis. Additionally, it is recommended to incorporate all three secondary macronutrients and eight micronutrients into the farm's nutrient management plan.

**Requirements-** The farm must show supporting evidence of application records and variants of fertilisers used. Synthetic fertilizer use reduction when comparing it to the baseline can be achieved through the use of natural alternatives or by implementing a combination of regenerative practices tailored to enhance soil health and increase yields, thereby reducing the reliance on additional fertilizers. Baselines can be established either through the last three years' data from farms or from approved sources, including verified statistics or data sources verified by the appointed certification body.

#### Scoring based on (for synthetic NPK input)

- >5% above the baseline.
- equal to the baseline with a 5% margin.
- >5-25% below the baseline.
- >25-60% below the baseline.
- >60% below the baseline.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Reducing synthetic fertilizer use varies in difficulty and impact on ecosystem services. Arid climates face greater challenges, while tropical regions find it easier due to higher SOM. Soil texture influences difficulty, with sandy soils presenting unique challenges. In terms of impact, tropical climates show lower impacts, while sandy soils experience greater effects, requiring additional efforts for fertility enhancement. However, difficulty of application and positive outcomes for soil health and ecosystem services are universally consistent across diverse farming approaches.

# Natural Crop Protection Strategies

#### *Applicable land*- ARABLE, FRESH PRODUCE, SOFT/TOP FRUITS

*Introduction & benefits of implementation-* Replacing chemical CPPs with the use of natural ones has consequences on multiple aspects:

- Reduced dependency on synthetic pesticides.
- Reduced pressure on above-ground and below-ground biodiversity.
- Increased positive impact on human health through higher quality food and decreased contamination of aquifers.

**Objectives-** Reduce dependency on synthetic pesticides, boost soil's biology and surrounding biodiversity, and avoid biodiversity loss.

**Guidance**- When the appropriate regenerative practices are implemented in the correct context, the result will be the reduced pressure and self-regulation of pests and diseases through the work of natural plant immunity, the presence of beneficial organisms within the soil, and insects. Nature-based CPP strategies include for example: having an IPM, using certified organic products and bioactive compounds (bacteria, fermentation, plant's extracts, and others) that can either act as pesticide, repellent, or immunity booster for the plants, using biopesticides, natural predators, beneficial insects or microorganisms for biological pest control.

**Requirement**- The farm must show supporting evidence of application records, the type of CPP used, and strategies that are in place. A management plan shall also show consideration of environmental conditions and crop type when applying products.

#### <u>Scoring based on</u>

- No natural CPP strategies are in place.
- 1 natural CPP strategy is in place on >15% of the land.
- 2 or more natural CPP strategies are in place on >15% of the land.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualization of the assessment-** Natural crop protection strategies show a consistent level of difficulty irrespective of climate, soil types, or agricultural operation. Their impact is more significant in tropical climates, where diseases are prevalent, leading to increased adoption of

enhanced environmental sustainability. However, the positive effects remain consistent across diverse soil compositions and agricultural operations.

# Synthetic pesticide reduction

#### Applicable land; ARABLE, FRESH PRODUCE, SOFT/TOP FRUITS

*Introduction & benefits of implementation*- By implementing a diverse set of regenerative agriculture practices, the use of synthetic pesticides can be minimized, effectively controlling weeds and pests. This approach allows for a subsequent decrease in chemical applications. In areas with limited CPP use, the natural self-regulation of pests and diseases becomes more pronounced, yielding multiple benefits.

**Objectives-** Reduce dependency on synthetic pesticides, reduce biodiversity loss, boost soil's biology and nutrient cycling capacity, and phase out harmful chemicals.

**Guidance**- Using synthetic pesticides should be minimized where possible and must also avoid areas of natural habitat and or conservation. The use of HHP should be avoided and replaced with other alternatives. The compilation of these HHPs is derived from the research and recommendations of both the WHO and the FAO. Also, it is advisable to implement a rotation plan for active ingredients to mitigate the risk of pest resistance development.

**Requirement-** The farm must show supporting evidence of application records and variants of chemicals used. Synthetic pesticide use reduction when comparing it to the baseline can be achieved through the use of nature-based CPP strategies. Baselines can be established either through the last three years' data from farms or from approved sources, including verified statistics or other data sources that will be verified by the appointed certification body.

#### Scoring based on: For synthetic CPP use

- >5% above the baseline.
- equal to the baseline with a 5% margin.
- >5-25% below the baseline.
- >25-60% below the baseline.
- >60% below the baseline.

#### Minus points<sup>3</sup>

- 1 HHP is used.
- 2 HHPs are used.

<sup>&</sup>lt;sup>3</sup> Deductions are made from the total score.

**Contextualization of the assessment-** Reducing synthetic pesticide usage is more challenging in tropical climates due to increased pest pressure. However, difficulty remains consistent across soil types and agricultural operations. The impact is greater in arid climates but uniform across soil types and farming approaches, emphasizing the positive contribution to ecosystem services and environmental sustainability.

# Irrigation efficiency measures

Applicable land- ALL (only if irrigation is utilized)

**Introduction & benefits of implementation-** Water resources are becoming more scarcely available and less affordable due to aquifer depletion and unreliable weather conditions. To secure a future for agricultural land in arid climates there is a strong need to better manage water resources, starting with water use efficiency and monitoring. The implementation of such measures will bring higher resilience to farms.

**Objectives-** Lower dependency on external water, increase resilience to drought and heatwave events, smaller water footprint in local watershed, and yield optimisation.

**Guidance-** Irrigation management is site-specific, which is why farms are advised to build an irrigation management and monitoring plan based on their specific context. The irrigation efficiency practices included are:

- Weather station and moisture sensors to compute the water balance.
- Adding mulch and OM.
- High-efficiency irrigation systems such as nano irrigation or drip irrigation, LEPA, fertigation.
- Establishment of windbreaks.
- Calculating infiltration rates.
- Irrigation equipment maintenance.
- Landscape design/ land levelling.
- Use of remote monitoring control that enables timely responses to changing field conditions.
- Use of flow and pressure sensors for automated shut-off systems for when irregularities are detected.
- Automated irrigation scheduling or apps that generate irrigation plans based on crop type, growth stage and soil moisture levels.
- Data analytics and predictive modelling to analyse historical data and make precise irrigation recommendations.
- Water recycling and treatment to filter and treat irrigation runoff for reuse.
- Gravity-fed systems.

**Requirements-** Farms needs to show the presence of irrigation management techniques that have been identified due to their positive impact on the environment and yield performance. A water management plan and/or irrigation plan is also requested. Water usage shall be tracked on a per-crop and per-year basis.

#### <u>Scoring based on</u>

- Farm utilises 0-1 of the specified irrigation management practices are utilised.
- Farm utilises 2-3 of the specified irrigation management practices.
- Farm utilises >3 of the specified irrigation management practices.
- Farm utilises >5 of the specified irrigation management practices and the annual quantification of water usage is conducted on a per-crop and per-year basis.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Implementing irrigation efficiency measures remains consistently achievable across climates, soil types, and agricultural operations. The impact is more significant in arid climates, followed by temperate and tropical climates, emphasizing the need for water conservation in water-scarce regions. In terms of soil, the impact is more pronounced in sandy soils, highlighting the importance of efficient irrigation. Nonetheless, the positive impact on water conservation and ecosystem services is generally consistent across diverse farming operations.

# Soil Analysis

#### Applicable land- ALL

**Introduction & benefits of implementation-** Sampling the soil is an effective and accurate method for measuring its health. The key metrics to be included in a soil sample encompass SOM and SOC levels, pH of the soil, CEC, NPK levels, magnesium levels, infiltration rates, and bulk density. Optionally, other indicators such as earthworm count, soil biology audit (DNA testing), assessment of heavy metals, and any relevant soil health indicators can be considered. This comprehensive approach ensures a thorough evaluation of soil health, aligning with Regenagri's objectives to collect information and evidence on soil health performance.

**Objectives-** Collect information and evidence on soil health performance, evaluate effects of farming practices on carbon objectives.

**Guidance-** A suggested approach involves a consistent soil sampling schedule and technique, incorporating GPS where feasible for standardized testing. Soil sample analysis, integrated with a soil management plan, provides direct insights into the influence of regenerative practices on soil health. The regenagri Implementation Procedure details the recommended soil sampling procedure comprehensively. Additionally, it is advisable to conduct soil biology analysis every three years because it provides valuable insights into the dynamic ecosystem of the soil. This regular assessment helps monitor changes in microbial activity, nutrient cycling, and overall soil health, enabling informed decisions on sustainable agricultural practices and the effective management of soil resources.

**Requirements-** Farms need to be able to show the results both of their soil analysis that is not older than 3 years old, and of their soil management plan. The results need to be either published through the online assessment tool, or recorded during an on-site audit.

The soil samples must be taken from productive land, and sampling shall occur at the same time of year. Ideal times for soil-sampling depend on the region and type of farming. The sample shall not take place shortly after a significant disturbance to the soil has occurred. Sampling on arable land shall be done across a range of 0-30cm depth, ideally at a multiple depth of 15-30cm.

#### <u>Scoring based on</u>

- No soil test have been done in the last 3 years.
- Presence of soil tests in the last 3 years.
- Records are present of on-site soil tests. A soil management plan is in place to improve the SOM.
- Records are present of on-site soil tests. A soil management plan is in place to improve the SOM. It is observed that SOM is increasing.

#### The score is subsequently influenced by the specific context of each farm.

*Contextualisation of the assessment-* Soil sampling holds universal significance in agriculture and is accorded equal importance across all contexts.

# Regenerative Livestock Management

# Rotational grazing

#### Applicable land- PASTURE, MIXED

*Introduction & benefits of implementation*- Rotational grazing can regenerate land and build diverse agroecosystems, as this practice aims to strategically mimic nature- Livestock herds are supposed to move constantly from field to field under the pressure of low availability of herbaceous resources and from predators- constituting a seasonal grazing pattern. By adopting a rotational grazing plan, animal needs are re-aligned with the ecology of grassland systems.

To accomplish this, it is recommended to fence larger fields into smaller paddocks with temporary and or moveable fencing. After a certain period of days, the livestock will receive a new paddock to ensure a beneficial grazing rate for the pasture and livestock and avoid overgrazing on the same patch of pasture. This type of grazing requires logistic planning before deployment, and the provision of water troughs or a portable watering system.

**Objectives-** Optimise pasture fertility, increase soil health and SOM, optimal use of on-farm resources.

**Guidance-** Rotational grazing plans are dependent on many site-specific factors such as climate, soil type, animal species and plant species and need thorough planning and constant monitoring. The shorter the animals spend on one paddock the better, as the longer animals graze on the same land the less nutritional value they receive. This also allows the maintenance of more constant intake rates as they graze most intensely when first moved- this enables milk yields for example, to remain more constant.

**Requirements-** A rotational grazing management plan shall be in place for as much of the livestock and grazing land where possible. A management plan shall include the rotation of the livestock between plots, the duration of that paddocks is grazed, and monitoring of the land assigned to rotation.

#### Scoring based on

- Animals graze on the same plot for an average of more than 14 days.
- Animals graze on the same plot for an average of 8-14 days.
- Animals graze on the same plot for an average of 4-7 days.
- Animals graze on the same plot for an average of 3 days.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Rotational grazing promotes land regeneration and diverse agroecosystems across various climates and soil types. Its effectiveness is notably pronounced in temperate climates, where it optimizes pasture fertility and soil health, reflected in better results for shorter grazing periods. While still beneficial in arid and tropical climates, logistical challenges and rapid vegetation growth may limit its impact. Nevertheless, rotational grazing positively influences diverse soil compositions, with a heightened significance in optimizing sandy soils for efficient grazing practices.

# Grazing Density

#### Applicable land- PASTURE, MIXED

**Introduction & benefits of implementation**- If livestock are densely packed and move quickly through a landscape, then pastures and soil can regenerate. Grazing density management shall be in place to avoid overgrazing and maximise recovery time for grasslands. The farm is trying to achieve the optimum graze-plant recovery ratio (with shorter grazing periods for livestock and longer recovery periods for plants). This is a measure of a pasture's ability to produce enough forage to meet the requirements of grazing animals. Reducing grazing density allows forage to grow taller which increases structural complexity, while reducing habitat fragmentation and increasing biodiversity.

**Objectives**- Optimise nutrition and health of livestock, make optimal use of local resources.

*Guidance-* The type of land being grazed, the weather conditions, and the species of livestock are important considerations. Different species of livestock will graze an area of land differently and, as such, will favour different varieties of plants. This should be factored into any decisions being made on grazing density. Grazing density should be calculated by the number of livestock units of the land area.

**Requirements-** The farm needs to be able to present a grazing management plan which includes the grazing density figures based on the capacity of its grasslands.

#### <u>Scoring based on</u>

- No grazing management plan is in place.
- Grazing management plan is in place that justifies and implements most appropriate grazing density.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Grazing density, a critical aspect of pasture and soil management, is contextualized based on the specific characteristics of each farm. The scoring system reflects the farm's commitment to implementing an effective grazing management plan. The impact of grazing density is more pronounced in certain contexts, such as mixed or pasture lands, where strategic management enhances regenerative practices and contributes to the overall health of the ecosystem.

# Grazing Period

#### Applicable land- PASTURE, MIXED

*Introduction & benefits of implementation*- Ensuring the well-being of animals and preserving land and soil health necessitates a strategic approach to the grazing period. All monogastric and ruminant species benefit from ample outdoor exposure, promoting optimal nutrition and health. However, judicious consideration is crucial to avoid grazing during wet winter months, preventing soil poaching and compaction that could negatively impact the land.

**Objectives-** Improve grassland's ecology dynamics, optimize livestock nutrition and health, boost soil's biology.

**Guidance-** The capacity of a farm to extend its grazing period throughout the year highly depends on its climate. It is suggested 1) adapting to each specific climatic situation, and 2) to pay particular attention to the areas of land that can easily become waterlogged. A shelter can be a physical structure, trees, hedgerows that can allow livestock to cool down in summer or shelter during the winter.

*Requirements*- Farms need to substantiate, through a grazing period management plan, the total days of open-air grazing for their livestock.

#### Scoring based on

- No grazing management plan is in place.
- Grazing management plan shows that livestock graze outside in the adequate periods, dependent on weather and climate.
- Grazing management plan shows that livestock graze outside in the adequate periods, dependent on weather and climate, and that they also have access to a shelter.

**Contextualisation of the assessment-** The scoring for grazing period is tailored to each farm's specific characteristics, emphasizing the commitment to implementing an effective grazing management plan. The impact is more pronounced in contexts like mixed or pasture lands, where strategic management enhances regenerative practices and contributes to overall ecosystem health.

# Multi-Species Livestock Integration

#### Applicable land- PASTURE, MIXED

**Introduction & benefits of implementation-** Integrating multiple species of livestock into a rotational grazing management plan results in a more efficient use of grasslands. Multi-species grazing models have shown a positive result on grassland fertility, boosting soil's biology and increasing its carbon stocking potential. There is also a direct effect of multiple species livestock integration on the quantity and quality of pasture available for the animals which allows optimization of livestock nutrition and health.

The animal diversity can also result in better control of unwanted weeds, forage, and brush, and can decrease pests from spreading (e.g., cows' internal parasites are often grazed by chicken).

This does not mean animals should be in the same section of land at the same time. For example, cows could be kept on a paddock for 2 days. Then, when they are moved, chickens are brought onto this patch of land. Livestock can also roam on land which is being used for crop production/woodland.

**Objectives-** Improve grassland's ecology dynamics, optimize livestock nutrition and health, boost soil's biology.

**Guidance-** When deciding which species to add to a grazing system, it is best to consider current plant species on the farm and determine which are not being grazed. Knowing how different species graze and which plant species they prefer is essential before deciding what will be an effective plant species combination on a particular farm. Where possible it is also beneficial for animals to graze on areas of land used for crop production.

*Requirements*- When grazing land is available, farms shall integrate 2 or more species of livestock into as much grazing land as possible.

#### <u>Scoring based on</u>

- Only one livestock species is present in the farm.
- Grazing plan integrates at least 2 livestock species.
- Grazing plan integrates 2 or more livestock species, including both ruminant and monogastric species.
- 2 or more livestock species are grazing in the same field. Holistic grazing plan integrates 2 or more livestock species, including both ruminant and monogastric species.



**Contextualisation of the assessment-** The scoring for multispecies livestock integration recognizes its universal significance in agriculture but acknowledges variations in difficulty and impact across diverse contexts, considering factors such as climate, soil types, and farm operations. Feasibility and challenges differ based on environmental conditions, with arid regions facing water availability issues and temperate climates offering more favourable conditions. Soil composition, including sandy, loamy, or clayey types, significantly influences integration success, impacting forage availability and the well-being of different livestock species.

### Grassland Botanical Diversity

Applicable land- PASTURE, MIXED

**Introduction & benefits of implementation-** In addressing the loss of biodiversity in both croplands and grasslands, the implementation of diverse grasslands becomes essential. To counter the depletion of vegetal diversity, areas of pasture can be sown with seed mixtures comprising grasses, legumes, and herbs, often incorporating up to 20 different species. These diverse grasslands serve dual purposes, supporting both grazing and winter feed production for livestock. The objective of this initiative is to improve the ecology dynamics of grasslands, enhancing resilience through diversification. By providing diverse and functional fodder, the approach aims to increase biodiversity and soil health. This practice goes beyond traditional monocultures, offering numerous benefits. The diversified grasslands contribute to increased nutrient cycling, higher photosynthetic efficiency, improved water retention capacity in the soil, and opportunities for carbon sequestration. Additionally, these grasslands may exhibit anthelmintic properties, potentially reducing veterinary bills. The extensive scientific literature on this subject highlights significant economic benefits to farms and increased resilience against droughts, particularly in arid climates.

**Objectives-** Improve grassland's ecology dynamics, improve resilience through diversification, provide diverse and functional fodder, and increase biodiversity and soil health.

*Guidance-* It is advised to take a site-specific approach, considering the soil, the climate, the species of livestock that will be grazed, and the ecosystem service a farm wishes to harness. This will inform the farm as to which combination of plants will work best in their context.

**Requirements-** Farms shall have a management plan to diversify the plant species in grassland agroecosystems. Evidence such as: label of the seeds, purchase receipt, or other means may be necessary. The complexity and mix of the herbal leys will be later verified through on-site audit by regenagri. Weeds present in the grassland are also considered.

#### Scoring based on

- <2 species of plants are present within the grassland.
- 2-9 species of plants are present within the grassland.
- >9-15 species of plants are present within the grassland.
- >15 species of plants are present within the grassland.

*Contextualisation of the assessment-* Grassland botanical diversity faces climate-specific difficulties, like water availability in arid regions or favorable conditions in temperate climates, which influences the feasibility of maintaining diverse grassland botanicals.

# Animal Feed

#### Applicable land- PASTURE, MIXED

*Introduction & benefits of implementation*- For the well-being of livestock and the environment, it is crucial to provide animals with high-quality feed in a balanced ratio, supplemented as needed to promote good health and reduce the reliance on antibiotics. The overarching objective is to prioritize the utilization of local resources, guarantee the sustainability of sourced inputs, and ensure the overall health of the animals.

**Objectives-** Prioritise the use of local resources, ensure sustainability of sourced inputs, ensure animal's health.

**Guidance-** Farms should look at sourcing feed, if brought in, from deforestation-free suppliers and try to and use local suppliers where possible. It is also encouraged the DMI of the livestock to be from forage (plant material not including grains) as often as possible. Types of forages include hay, haylage, silage, and crop residue.

**Requirements-** Farms shall be able to show proof of the composition of the animal feed, its sourcing and additional supplements, or veterinary intervention related to nutrition.

#### Scoring based on

- Livestock are in a no grazing system.
- Livestock graze and are supplemented with a maximum of one third concentrates, and two thirds forage and/or grains.
- Livestock graze and are supplemented with just forage and/or grains, no concentrates.

#### The score is subsequently influenced by the specific context of each farm.

*Contextualisation of the assessment-* In temperate climates, natural forage is feasible due to mild weather, while arid regions rely on supplements. In the tropics, abundant vegetation helps, but supplements may be needed due to seasonal variations and droughts.

#### Calf Feed

Applicable land- PASTURE, MIXED (applies for dairy farms only)

*Introduction & benefits of implementation-* Calf development is key for not only animal welfare, but for the economic stability on the farm. Good animal husbandry early on can help prevent diseases and keep mortality rates low.

**Objectives-** Animal welfare, optimal livestock development and animal health.

**Guidance-** To improve animal health and welfare for calves, extra milk should be fed to calves. This aids their growth rates that cannot be made up later. If fed a hard feed during this time (i.e., hay grass straw) this can help calves to develop their rumens in a gradual transgression to ruminant animals.

*Requirements*- Farms shall be able to show proof of this practise to an auditor.

#### <u>Scoring based on</u>

- Calves fed on milk powder or suckling for up to 8 weeks.
- Calves fed on milk powder or suckling for >8-12 weeks.
- Calves fed on milk powder or suckling for >12-16 weeks.
- Calves fed on milk powder or suckling for >16 weeks.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** In temperate climates, the choice between artificial and natural calf rearing is less critical due to ample pasture grazing opportunities. Arid regions emphasize powdered milk feeding for survival, while tropical climates consider factors like disease control, allowing for a mix of both methods.

# Animal Health

#### Applicable land- PASTURE, MIXED

**Introduction & benefits of implementation-** Ensuring animal health is integral to animal welfare and can lead to heightened yields without additional inputs. It's essential not only to treat but also to promote livestock health. Excessive or improper antibiotic use diminishes their effective-ness, emphasizing the need for judicious use.

Objectives- Animal welfare, optimal livestock development, and animal health.

*Guidance-* Health should be treated with high importance and always managed; livestock should be checked a minimum of once per day and any issues observed should be managed efficiently and effectively. There should also be an annual health check carried out by a vet.

**Requirements-** There shall be a farm-specific and regularly updated animal health plan (signed, dated and reviewed annually by a vet). This shall include information on nutrition, vaccinations, stress avoidance (for example handling methods), biosecurity, foot/ hoof care, disease records, mortality records and cause (including euthanasia). It shall also identify potential future problems (risks and diseases) and how the farm will prevent the occurrence of these along with plans to improve overall herd health and reduce reliance on veterinary treatment. Up to date medicine records shall also be present including the name of person administering, name of product, date of purchase and expiry date, batch number, quantity bought, identity and number of animals treated, quantities used, reasons for treatment, date of treatment(s) and withdrawal period.

#### Scoring is based on:

- No animal health plan is in place and/or no up to date medicine records are present.
- A comprehensive animal health plan and up to date medicine records (if applicable) are present.
- A comprehensive animal health plan and up to date medicine records (if applicable) are present and there is no prophylactic or sub-therapeutic use of antibiotics and no hormones used for growth.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** In temperate climates, a structured animal health plan is important but less urgent due to milder conditions. Arid regions prioritize it for survival and well-being, focusing on water, disease prevention, and early detection. In tropical climates, a robust health plan is crucial due to higher disease pressures, emphasizing prevention, vaccinations, and monitoring for optimal livestock health and productivity.

# Landscape management

# Biodiversity

#### Applicable land- ALL

*Introduction & benefits of implementation-* Quantifying outcomes is crucial when integrating biodiversity with agricultural management. Furthermore, by encouraging biodiversity within an agroecosystem, regenerative practices can keep weeds and pests under control by harnessing key ecosystem services, whilst boosting the numbers of pollinator species, and increasing yields.

**Objectives-** Biodiversity integrated in agricultural management, and quantification of the outcomes of these practices.

**Guidance-** This section is aimed at measuring additional interventions done to enhance biodiversity. To improve biodiversity on a farm multiple actions can be taken depending on local ecosystems and farm type. This section aims at collecting data related to proactive and meaningful efforts to boost local biodiversity. Biodiversity practices can include:

- Planting wildflower meadows.
- Creating wildlife corridors and strips, ditch restoration.
- Installing beetle banks and bird nest boxes.
- Creating wetlands and scrapes.
- Taking field corners out of management.
- Increasing margin size and diversity, woodland improvements (pollarding and tree surgery).
- Not using GMOs.
- Establishing permanent pasture.
- Converting to organic.

• Increasing and creating landscape elements such as ponds, terraces, windbreaks, etc.

Points for this criterion are awarded depending on the practices implemented and the outcomes. Practices may target insects, mammals, vegetation, birds, water life, reptiles, amphibians, soil life, and genetics (within arable crops, trees, livestock).

**Requirements-** Practices already implemented and related to the other criteria are not accounted for again under this Biodiversity criteria, unless additional interventions are undertaken. For example, planting hedgerows is not assessed under this Biodiversity criteria, as it falls under the Hedgerows and Windbreak section. However, the diversification of hedgerow species can be recognized as a valid action. Under the regenagri certification program the farm shall provide the certification body with supporting evidence attesting outcomes of their implemented biodiversity measures. Such documents shall include 3 key points:

- Monitoring plan
- Methodology of data collection
- Results

#### Scoring based on

- No practice implemented.
- 1 practice implemented.
- 2 practices implemented.
- 3 or more practices implemented.
- 3 or more practices implemented and 1 verified positive outcome.

#### Additional points

2 verified positive outcomes.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Biodiversity conservation presents varied challenges and impacts influenced by contextual factors. Yet, in a general sense, the difficulty and positive effects remain consistent across climates, soil types, and agricultural operations. While local conditions may introduce nuances, the overall importance of biodiversity conservation remains steadfast across diverse environments and farming practices.

### Buffers around watercourses

*Applicable land*- ALL (only applicable when water bodies like ponds, rivers, or lakes, are present on the farm)

**Introduction & benefits of implementation-** The presence of buffer zones has rarefied in the last decades due to the high pressure of mechanised and intensive agriculture. Nonetheless, these buffers provide key environmental services that extend beyond the farm itself, and their demise is becoming more of a public concern. These zones are effective at intercepting and filtering both N and other nutrient surpluses from entering water bodies. Such nutrient surplus is responsible not only for environmental damage via eutrophication harming fish, amphibians, and

shellfish, but also it poses a significant price for water utility companies, who struggle to remove such compounds.

Buffer zones also offer other benefits - they aid biodiversity by providing habitat through ecological corridors, reduce the impacts of flooding, minimize the risk of soil erosion, and stabilise stream banks and hold sediments while reducing waterways and watershed pollution. From an agronomic viewpoint, these buffer zone can help reduce the impact of wind on crops (windbreakers) and can help the beneficial insects and birds which control pests. Examples of popular buffer strip plantings are mulberry, willow, oak, elm, hazel, lilac, and cottonwood.

**Objectives**- Ecological corridors for biodiversity, reduce waterways and watershed pollution.

*Guidance-* It is advised choosing trees/shrubs/grasses which are appropriate to your local context and to consider their wider effects, such as light competition with adjacent cultures. Waterbodies adjacent to the farm should also be considered. Waterbodies include ponds, rivers, lakes and streams.

**Requirements-** Farms shall plant and maintain as many as buffers zone around watercourses as possible. Key criteria for the evaluation will not only be their coverage along a watercourse, but also their width. Wider buffers are generally more effective at trapping pollutants. The presence and management of buffers will be later verified through on-site audit.

#### <u>Scoring based on</u>

- All buffers adjacent to any body of water are <5m wide.
- All buffers adjacent to any body of water are at least 5-15m wide.
- All buffers adjacent to any body of water are >15-25m wide.
- All buffers adjacent to any body of water are >25m wide.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Implementing buffers around watercourses maintains a consistent difficulty level, irrespective of climate, soil type, or agricultural operation. The impact is more pronounced in arid climates, followed by temperate and tropical climates, addressing challenges related to water scarcity. Buffers have a greater impact in sandy soils compared to silt and clay soils, particularly crucial for erosion prevention. In crop-based operations, the impact is more substantial due to intensive cultivation practices, emphasizing the importance of buffers in mitigating potential negative effects on watercourses.

# Hedgerows and Windbreaks

Applicable land- ALL

*Introduction & benefits of implementation-* A hedgerow or a windbreak is usually a line of bushes and shrubs that can include trees with no considerable gaps. This living fence can substantially improve micro-climatic conditions, landscape diversification, ecological corridor for biodiversity, and ecosystem resilience through natural pest and disease protection. Hedgerows and windbreaks help move wind above ground level helping prevent soil erosion, increase yields, reduce nutrient losses and improve soil health. They also provide shelter for livestock, provide food and corridors for wildlife, including pollinators and predator species, reducing the need for pesticides. These elements can also be harvested for biomass or secondary crops. They can also act as carbon sinks and provide visual aesthetics for rural landscapes.

**Objectives-** Creation of intra-farm microclimates, Landscape diversification, natural pest and disease protection, Ecological corridor for biodiversity.

**Guidance-** Hedgerows should be thick and bushy and managed appropriately to help biomass or fruit growth whilst respecting hedgerow cutting restrictions to not disturb nesting birds. The efficiency of windbreaks is related to height, length, density, number of rows, continuity, orientation and species composition Windbreaks can also include stonewalls, banks and in some cases fences, but living forms of windbreaks should always be the preferred method. The size, denseness and quality of the hedgerows will be checked to ensure they are able to provide the required services.

**Requirements**– Farms shall maintain or build back these landscape elements which provide strong ecosystem services and ecological connectivity.

Hedgerows bordering a forest will not be counted.

#### Scoring based on:

- <30% of the field is bordered by hedgerows or windbreaks.
- 30-60% of the field is bordered by hedgerows or windbreaks.
- >60-80% of the field is bordered by hedgerows or windbreaks.
- >80% of the field is bordered by hedgerows or windbreaks.

#### <u>Additional points</u>

- hedgerows or windbreaks are present at least every 750m within the field boundaries.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Implementing hedgerows and windbreaks is more challenging in arid climates due to water scarcity. Feasibility remains consistent across soil types and agricultural operations. Their impact is more significant in arid climates, particularly in water conservation and erosion prevention, with a more pronounced effect on sandy soils. Agroforestry and top fruits operations show less additional impact due to existing elements.

# Conservation of natural habitat

#### Applicable land- ALL

**Introduction & benefits of implementation-** At the heart of regenerative agriculture is the concept of 'restoration'. Surrounding lands need to be respected, protected, and encouraged to flourish. A natural habitat is a zone untouched by agricultural management, therefore providing a habitat for biodiversity to live, move and reproduce. Examples of natural habitats include hedgerows, riparian buffers, shrublands, wild woodlands, wild grasslands, and any other land that is left un-

touched by anthropic activities. Intensified agriculture negatively impacts biodiversity and ecosystem services, necessitating sustainable landscape design that balances production with conservation.

**Objectives-** Wildlife diversity, Ecological connectivity, Landscape diversification, Increased systemic resilience.

**Guidance-** Each farm should find what is best for their own local conservation area strategy to match with local climate, biodiversity, and ecosystem services. A combined approach of land sharing and separation is advocated to maximize benefits for agricultural production, ecosystem services, biodiversity and ecological connectivity.

**Requirements-** A percentage of the land owned by the farm shall be devoted to conservation of natural areas without any anthropic activities. The presence and management of natural habitat zones will be later verified through on-site audit by the certification body.

#### Scoring based on

- Locally applicable policies for natural habitat conservation are not fulfilled.
- Locally applicable policies for natural habitat conservation are fulfilled.
- The farm allocates more than 2% of the natural habitats required by local laws, regulations, or policies.

#### Additional points

- the farm has been enlarging (more than 0.5% of the total) the land dedicated to conservation area in the last year.

#### The score is subsequently influenced by the specific context of each farm.

*Contextualisation of the assessment-* Conserving natural habitat between farms is crucial across climates, soils, and agricultural operations. It supports biodiversity, ecosystem services, and sustainability in agriculture.

#### Afforestation

#### Applicable land- ALL

**Introduction & benefits of implementation-** Trees are one of the most effective natural carbon stocks, with afforestation being one of the primary tools for sequestering  $CO_2$  from the atmosphere. Trees enrich soil with nutrients and are invaluable for the health of human and non-human species alike, providing habitat, fuel, food, and ecosystem services.

It can be beneficial for livestock to be integrated into areas of crop production/woodland. Trees can, for example, be planted in fields or in field margins, and this technique of integrating trees into the farm system, as mentioned in the perennial section above, improves soil quality and nutrient retention (i.e., increasing nutrients such as N in the soil), reduces pests, utilises solar energy more efficiently than mono-cultural systems, and offers both greater water management

and a more diverse farm economy. Planting trees in fields can also reduce the risks associated with wind erosion and drought.

**Objective-** Diversification of the farm, increase carbon sequestration in biomass, boost local biodiversity, optimise water and nutrient dynamics.

**Guidance**- It is advised choosing trees/shrubs which are appropriate to your local context and to consider effects such as light competition with adjacent cultures. Also, trees planted in the conservation area can be kept into account.

**Requirements**- The farm shall be able to show a tree management plan composed of planting density, location, type of trees and annual growth measurements. Please note that these ratios will be considering all the enrolled farmland- productive and non-productive.

#### <u>Scoring based on</u>

- No net gain in trees per hectare over the last 5 years.
- 0.1 1.5 trees/ ha net gain of trees over a 5-year period.
- >1.5-3 trees/ha net gain over a 5-year period.
- Net gain of trees >3 trees per hectare over a 5-year period, with some being integrated into the arable or livestock farming system (agroforestry alley cropping, silvopasture, hedgerows and windbreaks).

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Afforestation holds varying importance across climates, soil types, and agricultural operations. It mitigates erosion, provides shelter for livestock in temperate regions, combats desertification and supports agroforestry in arid climates, and aids habitat restoration and carbon sequestration in tropical areas. Regardless of soil type, it enhances soil health and contributes to long-term sustainability and resilience in agriculture.

# Environmental Impact

# Water Quality & Pollution Prevention

Applicable land- ALL (not applicable for organic farms)

#### Applicability clause for mandatory water analysis

- If the farm is >500 hectares.
- If the farm is applying synthetic inputs.

AND (any or both of the following options):

- If the farm has a still water body (pond, lake, wetlands).
- If the farm is one of the first 10 farms ahead in the watershed and the stream and is not shared by any other farms.

**Introduction & benefits of implementation-** Wastewater generated through the application of synthetic chemicals and the washing of machinery used in CPP application requires treatment before being discharged into the environment. It is crucial to tailor fertilizer applications to specific contexts to prevent leaching, runoff, and overuse.

**Objectives-** Reduce environmental pollution, and boost water biodiversity.

*Guidance-* Management of farm wastewater must adhere to the regulations of the respective country, ensuring compliance and preventing environmental pollution.

- Key practice: wastewater management plan, nutrient management plan.
- Additional practices: reed bed systems, settling ponds, collection to redistribute later, integrated into existing waste system, water quality analysis. The water samples for analysis should be taken from natural water features on the farm.

**Requirements-** The farm needs to show proof of a waste management plan and system that ensure that no wastewater contaminates water bodies or aquifers. Such a system needs to be adequately contextualised to the type of waste produced by the farm. The presence and management of adequate waste management procedures will be later verified through an on-site audit by the certifying body. The auditor will consider the following- slurry and manure storage, dirty water storage, pollution risk, historic pollution incidents, the farm's written waste management plan and its crop application details.

#### <u>Scoring based on</u>

- No key practices are place.
- At least 1 key practice is in place.
- At least 1 key practice is in place and at least one additional practice.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Water quality and pollution prevention are crucial across temperate, arid, and tropical climates, impacting various soils and agricultural operations. In temperate regions, they manage variable weather, focusing on buffer strips and nutrient control. Arid climates emphasize responsible water use and pollution prevention, addressing erosion and agrochemicals. In tropical areas, they safeguard ecosystems with buffers and pesticide control. These measures, adaptable to different soils, benefit livestock, crops, agroforestry, and fresh produce, promoting environmental sustainability in agriculture.

# Plastic Pollution Prevention

#### Applicable land- ALL

*Introduction & benefits of implementation-* Plastic pollution is a significant and growing problem globally. When improperly disposed of, plastic waste ends up in ecosystems causing damage to biodiversity and impacting landscape aesthetics. For example, plastic greenhouse vegetable cultivation offers economic benefits and enhanced goods provision, but environmental implications

require further assessment for informed decision-making, as plastic breaks down harmful chemicals and microplastics are released into the surrounding soil and watercourses. Widespread plastic use and its persistence in the environment pose significant health and environmental risks, necessitating the development of safer, biodegradable alternatives. There are many benefits to be gained from reducing plastic on a farm including reducing costs, reducing environmental impacts and implementing a positive culture for responsible practices.

**Objectives-** Reduce plastic pollution in the agroecological system, Support the transition to nature-based plastic alternatives.

**Guidance-** A plastic action plan should take a three-step approach: reducing use of plastic where possible and replacing with sensible alternatives, where this is not possible, ensuring plastic is reused and/or recycled, and finally if this is not possible, ensuring plastic is disposed of responsibly.

**Requirements-** The farm needs to establish, document, maintain, and continually improve a Plastic Action Plan according to the principles of refusal, reduction, reuse, recycling, and recovery of plastics. A Plastic Action Plan shall focus on accounting, reduction, implementation, system management, and involvement of staff. This document shall include- a demonstration of commitment to seeking alternatives to single-use and non-recyclable plastics, an assessment of alternative options that include economic, environmental, and health and safety analysis, a plastic purchase, use and waste review, and key plastic use reduction methods and time-bound targets. Such supporting documentation shall be collected by the auditor.

#### Scoring based on

- No plastic management plan is in place.
- Plastic management plan is present.
- Reduction in plastic use is already present and can be demonstrated.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Plastic pollution prevention in farms varies in difficulty depending on the climate, type of soil, and type of operation. It is more difficult to prevent plastic pollution in arid climates and for fresh produce operations. The impact of plastic pollution prevention measures is consistent across various climates, soil types, and types of agricultural operations.

### Rainwater harvesting

Applicable land- ALL

*Introduction & benefits of implementation-* Harnessing rainwater not only reduces costs but also enhances the farm's self-sufficiency and resilience. Various methods can be employed for this purpose, including the use of water butts or harvesting tanks. Implementing a pond system and/or a drip-irrigation system is recommended for sustainable water management. Depending

on the farm type and location, the incorporation of permaculture swales and keyline design systems, such as contour lines, terraces, or earthworks, could further optimize water utilization.

**Objectives**- Lower dependency on external water, lower input cost and energy requirements, increase resilience and self-sustaining model for a farm.

**Guidance-** As agricultural water management is strictly related to site-specific conditions; farms are advised to build a water harvesting system and plan which is based on their specific context.

**Requirements-** Farms shall have an active methodology of monitoring the water harvesting and its utilisation to limit the pressure on public water sources. The presence and management of water harvesting techniques will be later verified through on-site audit by regenagri.

#### <u>Scoring based on</u>

Please specify the average annual rainfall for your region- ..... mm.

#### If the average annual rainfall in your region is between 0-475mm-

- No system is in place for the effective harvesting of rainwater.
- A system is in place and rainwater harvesting meets 0-15% of water requirements.
- A management system is in place and rainwater harvesting meets >15% of water requirements.

#### If the average annual rainfall in your region is between 475-1475mm

- No system is in place for the effective harvesting of rainwater.
- A system is in place and rainwater harvesting meets 0-15% of water requirements.
- A management system is in place and rainwater harvesting meets >15% of water requirements.

#### If the average annual rainfall in your region is above 1475mm

- No system is in place for the effective harvesting of rainwater.
- A system is in place and rainwater harvesting meets 0-15% of water requirements.
- A management system is in place and rainwater harvesting meets >15% of water requirements.

#### The score is subsequently influenced by the specific context of each farm.

**Contextualisation of the assessment-** Rainwater harvesting's importance varies with climate and agriculture. It's crucial in arid regions for livestock and crops, and provides backup in temperate zones during dry spells. Effective on various soils, it supports agriculture, especially in arid regions.

### Renewable Energy

#### Applicable land- ALL

**Introduction & benefits of implementation-** Regenerative agriculture is highly focused on creating positive outcomes for the environment at a global and local scale. It is for this reason that the source of a farm's energy must also be considered. Renewable sources of power include

solar, wind, bioenergy (e.g., methane harvesting), hydropower, tidal, geothermal. Farms using renewable energy sources have lower greenhouse gas emissions, lower water consumption, and lower soil erosion than conventional farms. Additionally, renewable energy farms are more likely to be adopted by other farms due to cost savings and productivity improvements. Renewable energy use is an important part of regenerative agriculture, contributing to a more sustainable food system.

**Objectives-** Avoid GHG emissions coming from fossil fuels, reduce dependence on fuel price fluctuations, and stimulate renewable energy adoption.

**Guidance-** Moving towards renewable energy is also a key steppingstone for limiting on-farm emissions. Grouping with other farms and/ or applying for grants is a good way to minimise the initial investment which is often required for setting up renewable energy infrastructure. Hy-dropower should be treated with caution because of the wider environmental implications damming a river can have.

**Requirements-** Farms shall be able to show whether the energy they use for on-farm operations comes from renewable sources or non-renewables. The percentage of energy being sourced from renewable sources used shall also be accounted for and provided.

#### Scoring based on:

- 0% of energy used on is sourced from renewable sources.
- 1-10 % of energy used is sourced from renewable sources.
- >10-25 of energy used is sourced from renewable sources.
- >25-50% of energy used is sourced from renewable sources.
- >50% of energy used is sourced from renewable sources (but not hydropower).

#### The score is subsequently influenced by the specific context of each farm.

*Contextualisation of the assessment-* Using renewable energy instead of non-renewable holds universal significance in agriculture and is accorded equal importance across all contexts.

# **Emissions** verification

# Greenhouse gas emissions

**Introduction & benefits of implementation-** A set of data of the regenagri assessment, including SOM and SOC, as well as carbon biomass (tree growth and tree type), are used for the calculation of GHG emissions and carbon sequestration at crop and farm level. The calculated values are dissected into distinct categories of on-farm management practices, such as fertilizer usage and machinery operation. These data are measured and certified through third-party certification bodies accredited to ISO 14064/5, ISO17065.

*Guidance-* To ensure the most accurate results the organisation undergoing the regenagri assessment should supply as much applicable information as possible.

**Requirements-** If the organisation is looking to develop a regenagri carbon credits project then the regenagri Carbon Standard will apply in addition to the regenagri Standard Criteria. The regenagri Carbon Standard and related documents are available at <u>https://regenagri.org/</u>.

Emissions calculation methodology: greenhouse gas emissions calculator is based on empirical research from a broad range of published data sets and IPCC methods. Unlike many other agricultural greenhouse gas calculators, it includes calculations of soil carbon sequestration, which is a key feature of regenerative agriculture that has both mitigation and adaptation benefits.

The tool calculates emissions for topics such as:

- $N_2O$  emissions based on an empirical model built from an analysis of over 800 global datasets. These datasets refine IPCC Tier 1 estimates of  $N_2O$  emissions by factoring in the guiding drivers of  $N_2O$  emissions such as rate of N applied, soil texture, soil carbon, moisture and soil pH.
- Soil carbon sequestration based on the results of published studies built from over 100 global datasets.
- Embedded fertiliser production emissions based on the most up to date, peer reviewed industry data.
- Fuel and electricity use utilising standard conversion factors, taking into account the energy mix of each country and territory.

For a complete technical description of the method, please contact info@regenagri.org.

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