

## Criteria Overview for the DSF Criteria: Soil Nutrients

**Strategic Intent:** Nutrient application is managed to minimize impacts on water and air, while maintaining and enhancing soil quality.

**DSF Indicator Metric:** *Development and implementation of a Soil Nutrient Management Plan*

**NOTE-** The nutrient management plan could also include the Indicator Metric requirements for the Soil Quality and Retention Criteria. i.e. the two Plans can be combined into one Plan.

**About this Criteria:** Soil is the critical medium that ‘houses’ a vast range of nutrients and water required by plants to grow. This applies whether dairy farms are growing forage (including permanent pasture) or grain crops to feed their cows/buffalo.

The criteria specifically focus on the optimal availability of nutrients for crops to ensure crop requirements are met and minimizes nutrients being lost to water (through leaching) or air. It encompasses nutrient management planning where the requirements of crops grown are balanced from those already existing within the soil and those applied.

Applied fertilizer can be in the form of animal manures or manufactured fertilizers.

Aspects to consider, include:

- Soil structure & soil analysis including pH
- Rotations
- Fertility building crops
- Understanding the nutrient requirements of crops grown
- Nutrients removed by crops when harvested (mechanically or grazing) and how these are best replenished
- Fertilizer application strategy:
  - **RIGHT SOURCE:** Ensure a balanced supply of essential nutrients, considering both naturally available sources and the characteristics of specific products, in plant available forms
  - **RIGHT RATE:** Assess and make decisions based on soil nutrient supply and plant demand
  - **RIGHT TIME:** Assess and make decisions based on the dynamics of crop uptake, soil supply, nutrient loss risks, and field operation logistics
  - **RIGHT PLACE:** Address root-soil dynamics and nutrient movement and manage spatial variability within the field to meet site-specific crop needs and limit potential losses from the field



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- Application techniques of applied fertilizers to increase availability to the plants and to retain in the soil and not be lost through volatilization to the air or to waterways via run-off
- Storage of manures pre-application
- The potential for pollution of the environment when imbalance occurs

**Interlinkages:** This criteria links closely with the **Soil Quality and Retention, GHG emissions, Biodiversity, Waste** and **Water Criteria**.