Soil Quality Enhancement Activity – SQL08 – Intercropping to improve soil quality and increase biodiversity

Enhancement Description
This enhancement involves the use of intercropping principles, growing two or more crops in close proximity to each other, to promote interaction resulting in improved soil and water quality while increasing biodiversity.

Land Use Applicability
Cropland

Benefits
Incorporating intercropping principles into an agricultural operation increases diversity and interaction between plants, arthropods, mammals, birds and microorganisms resulting in a more stable crop-ecosystem. This collaboration that mimics nature is subject to fewer pest outbreaks; improved nutrient cycling and crop uptake; and increased water infiltration and moisture retention. Soil quality, water quality and wildlife habitat all benefit.

Conditions Where Enhancement Applies
This enhancement applies to all crop land use acres.

Criteria
One or more of the following intercropping systems will be used; systems can be mixed during the contract period allowing for a different system to be used each year on the same field.

1. Relay inter-cropping – the growing of two or more crops on the same field with the planting of the second crop after the first one, e.g. over seeding of a clover cover crop into cotton during defoliation, or planting of clover at lay by time of corn.
2. Row inter-cropping – the growing of two or more crops simultaneously on the same field with at least one crop planted in rows, e.g. planting corn in the rows and inter-seeding sorghum between the rows, harvesting all as silage or planting clover in between orchard tree rows.
3. Strip inter-cropping – the growing of crops in alternate strips wide enough to permit separate crop production using machines, but close enough for crops to interact, e.g. planting alternating rows of corn and soybeans 6 rows each or alternating strips of corn and Sudan grass. This isn't the same as NRCS conservation practice "Strip cropping" (585).

System design shall consider:

- Adjustments in plant density to avoid overcrowding.
- Maturity dates and/or development periods to maximize use of nutrients, water and other resources.
- Utilizing plant structure that provides for a diversity in heights with one plant providing a support for other to grow, e.g. corn supporting climbing beans
- Adjustments in nutrient requirements to account for those being supplied by inter cropping system used.

Adoption Requirements

This enhancement is considered adopted when one or more of the three list intercropping systems in the criteria above have been implemented on a crop land use acre.

Documentation Requirements

1. Written documentation for each year describing by field:
   a. Intercropping system used
   b. Crops planted
2. A map showing fields where enhancement was applied
3. Photographs of a representative number of fields

North Dakota Requirements

See North Dakota Recommendations for CSP Cover Crop Enhancements.

North Dakota Recommendations for CSP Cover Crop Enhancements

Refer to the ND NRCS 340 Standard and Specifications and the ND-NRCS-305 Cover Crop Workbook for species recommendations and planning guidance.

Use of Legume Cover Crops as a Nitrogen Source – ENR12
Acceptable legume species include, but are not limited to:

- Alfalfa
- Sweet Clover
- Edible Beans
- Peas
- Lentil
- Hairy Vetch
- Soybean
- Cowpea
- Berseem Clover
- Medic

Continuous Cover Crops - SQL02
Specific NRCS cover crop recommendations will be based on the identified purposes and resource needs as discussed with the client.

Use of Cover Crop Mixes – SQL04
Specific NRCS cover crop mixture recommendations will be based on the identified purposes and resource needs as discussed with the client.

Use of Deep-Rooted Crops to Breakup Soil Compaction – SQL05
Acceptable legume species include, but are not limited to:

- Alfalfa
- Beets
- Canola
- Corn
- Radish (oils seed or forage)
- Safflower
- Sorghum
- Sugarbeet
- Sunflower
- Sweet Clover
- Turnips

Plant an Annual Cover Crop Species That Will Scavenge Residual Nitrogen - WQL10
Acceptable species include, but are not limited to:

- Annual Ryegrass
- Barley
- Canola
- Oat
- Radish
- Rye
- Safflower
- Sunflower
- Triticale
- Turnip
- Wheat
- Winter wheat