These terms describe the purpose of each category of cover crop. A single species may have more than one function. Before selecting a cover crop or mixture of cover crops, analyze your goals for each field. This analysis should include a) a soil test, b) what are the needs of the next crop such as is it nitrogen needy or nitrogen productive, c) what are the fertility needs of the field, d) is it highly erodible land, either from wind or water, e) could it need organic matter, e) are there fertility excesses, f) does the pH need adjusting, etc.? Then choose cover crops that can make those improvements

Cover Crops: Cover crops are those crops that are planted to provide a cover for the soil. They are grown primarily as a biological soil conservation tool to prevent soil erosion by water and/or wind;and to foster multiple benefits in a farming system. These benefits include but are not limited to: optimization and/or normalization of the fertility profile, improvement of the soil properties such as water-holding capacity, structure and aggregation, rescue lost fertility that has leached away, provide deep root channeling for the next crop, and increased organic matter

Cover crops are typically planted before and after the main designated cash crop in a rotation. Cover crops may be used as a ground cover or mulch, green manure, nurse crop, or a smother crop. The cover crops can be annual, biennial, or perennial species, including legumes, grasses and the brassicas.

Green Manure: Any crop that is grown and incorporated into the soil while it is green or soon after flowering which can improve the soil, especially with the addition of organic matter plus N, P and K and other elements contained in the plant. The average availability of nitrogen in green-manure material turned under is typically about 50 to 60% of the initial amount as determined by a feed or tissue test. Green manure was once the conventional method of supplying nitrogen and other fertility to crops and was practiced widely before commercial nitrogen fertilizer became available.

Catch Crop: When cover crops are planted to reduce nutrient leaching they are termed “catch crops”. These are cover crops planted after the cash crop is harvested or after legume plow downs. They are also planted in late summer or early fall to trap nutrients from freshly spread manures. They are grown to take up and hold the nutrients in their tissues or "catch" the nutrients from the soil, especially nitrogen that may otherwise be leached lower in the soil profile and lost below the active crop root zone.

Scavenger Crops: Farmed soils that have been heavily cropped with shallow-rooted plants such as corn may become deficient in certain micronutrients. Deep-rooted scavenger cover crops such as certain annual ryegrasses, alfalfa, red clover and sweet clover grow roots deep into the subsoil and have the ability to bring soil nutrients from the lower soil profile to the upper layers and also into the scavenger crop’s leaf biomass securing it there for the next crop. The deep-growing root structure additionally helps to break up soil compaction and when these plants die, their decaying roots leave not only organic matter, but also channels in the soil that provide pathways for the roots of the following crop to follow down the profile. Tthese root channels also provide pathways for water to drain from the surface.

Break Crop: Cash crops attract and harbor particular populations of insect pests including harmful nematodes. Different species of cover crops can be selected in the rotation that do not harbor those pests or actually diminishes their population by interrupting the insects' life cycle. Reducing pests and disease populations is another one of the best reasons for using cover crops in your rotation.

Nurse Crop: A nurse crop is one that germinates and emerges quickly, holds the soil with quick cover and root structure and assists the development of a slower maturing crop. Oats, Italian ryegrass and festulolium are common nurse crops used to start a alfalfa/tall fescue hay crop. The oats or nurse crop grasses germinate first, out-compete weeds for available resources and then can be mowed when the legume and slower emerging grass starts to grow.

Smother Crops: Fast growing crops help control weeds by growing a thick canopy that reduces the amount of sunlight for weed seeds to germinate and grow. Smother crops grow tall at a fast rate or quickly produce broad leaves that shade out lower growing weeds. Including these covers in your rotation, growing double or triple crops in a single season is an effective strategy for weed control. An effective sequence of smother crops is oats in spring, buckwheat or sorghum-Sudan grass in summer and rye, triticale or forage brassicas in the fall. Hairy vetch planted in the fall and overwintering will then act as a spring smother crop smothering early spring weeds. These crops can also produce high quality forage.

Allelopathy: The term allelopathy is often used when referring to the weed suppressing attributes of certain cover crops. Allelopathy is "the inhibition of growth in one species of plants by chemicals produced by another species." It can be any direct or indirect harmful effect produced in one plant through toxic chemicals released in to the environment by another. The magnitude of the detrimental effects depends on the extent of any other stresses, such as environmental conditions or biological factors (e.g. insect or disease pressure) that occur at the same time. Different cover crops have different allelopathic effects, and the activity may be reduced or enhanced by microbial action, oxidation, and other transformations in the soil.

Some examples of allelopathic cover crops include:

- Peas, lentils, vetches - Beta-(3-isoxazolinonyl) alanine: released as root exudates. Suppressing lambs quarter, yellow foxtail, Yellow nutsedge and pitted morning glory

- Buckwheat – A compound called diethyl phthalate is produced by buckwheat and is responsible for weed suppression. This weed-suppressing compound is mainly in the stem rather than the shoots, so it is likely to be most active by suppressing weeds after the buckwheat is harvested. It was especially active on pigweed, and not particularly effective on plants in the mustard family.

- Cereal Rye and small grains including triticale- produce several compounds that inhibit crops and weeds. The most active compounds are two hydroxamic acids and their breakdown products.

- Crimson Clover - has been shown to suppress pitted morning glory, wild mustard and Italian ryegrass.

- Sorghum-Sudan grass – releases sorgoleone through the root exudates. sorgoleone interferes with photosynthesis of neighboring plants and crops that follow the sorghum.

To overcome the effects of allelopathy, light tillage or a heavy application of liquid manure will stop allelopathic effects. Many farmers use the allelopathy to their advantage to stop weeds from growing in between harvesting the small grains and before the next crop