**Irrigation System definitions**

**Basin irrigation** - Irrigate by flooding level fields. The perimeter of the basin is surrounded by dikes.

**Border Irrigation** - A surface irrigation configuration in which irrigation is applied to rectangular strips of the field. Borders typically have a slope in the direction of irrigation, but not laterally. The sides of the strip are generally edged with a small ridge or dike. Variations of border systems consist of:

Graded border – The border strips have some slope in the direction of irrigation, and the ends usually are not closed.

Level Border – The border strips have no slope in the direction of irrigation, and they are closed at the ends.

Guide border – small borders no wider than the width of the grading equipment blade. The earth that spills around the blade forms the ridges. The stream size used is only large enough to insure complete coverage of the border strip, primarily used to irrigate grasses.

Contour – level – nearly level strips or areas of predetermined size. Small dikes or levees surround the strips and are constructed longitudinally on the contour. Typically used with rice but has been adapted to the irrigation of pasture grasses, hay crops, small grains, and some row crops.

Border ditch - The border ditch system uses a ditch as a divider between individual strips. The ditch carries irrigation water which is applied at different locations along the entire length of the field.

**Furrow Irrigation** – Water is conveyed by use of small individually regulated field channels called furrows, creases, corrugations, or rills. Variations of furrow systems consist of:

Level furrow - small irrigation channels, with blocked or diked ends laid out with little or no grade.

Graded furrow - are small irrigation channels on relatively flat land laid out either in the direction of or across the slope of the land. They are constructed in a straight line, preferably parallel to a field boundary, and have a continuous, nearly uniform slope in the direction of irrigation.

Contour furrow - small graded irrigation channels on fields with uneven or warped surfaces. The furrows are curved to fit the general contour of the land and have enough grade to carry the irrigation stream to the end of the furrow.

Corrugation - small, closely spaced irrigation channels used to irrigate close-growing crops on moderately steep land. Irrigation water does not cover the entire field but is applied in small channels or corrugations evenly spaced across the field. Corrugation irrigation is commonly considered a temporary method of water application to be used for the first irrigation on fields that later will be irrigated by the border method or as a method of spreading water in graded borders. However, corrugation irrigation maybe installed as a permanent system.

**Wild flood** - Water is applied to the soil surface lacking flow controls and without management of flow rate and cutoff time.

Controlled flood – has a head ditch and several lateral ditches with no particular spacing, water is turned on and controlled by canvas dams and run over the bank or out through cutouts in the soil.  The lateral ditches may go to high spots in the field if there is any not get water through normal methods.

Uncontrolled Flood – has a main head ditch which get water by a turnout upstream. A canvas dam is use to turn water out onto the field at individual low spots or cutouts.  Water is left on several hours or even several days depending on the size of the field.  But once water leaves the main ditch there is no other control.

Contour Flood - this type of irrigation system consists of several ditches off a main ditch, these lateral contour ditches are space at certain intervals depending on topography.  Water is controlled through wooden turnouts or canvas dams from the main ditch into a contour ditch.  Within the contour ditch water is turned out by canvas dams which are spaced down the contour ditch.  Water enters the field by cutouts in the ditch, once water leaves the ditch and flows down slope it is collected in the lower contour ditch and reused.

**Surge irrigation -** Surface irrigation by short pulses or surges of the inflow stream during the advance phase and then by high frequency pulses or surges during the wetting or ponding phase. Surge is not a type of irrigation system per say but more a method of how the water is managed and may be used with any of the before mentioned surface irrigation systems.

**Sub Surface Irrigation** - water is applied beneath the ground by creating and maintaining an artificial water table at some depth below the ground surface. Moisture moves upwards towards the land surface through capillary action to meet requirements of the crops in plant roots. Water is applied through underground distribution system consisting of open ditches, mole drains or tile drains.

**Sprinkler irrigation**- Method of irrigation in which the water is sprayed, or sprinkled, through the air to the ground surface.

Big gun – A system that consists of a single large sprinkler or gun that can be mounted as a solid set or portable system. When used as a portable system it can be moved manually or automated via a retractable hose and reel.

Boom - An elevated, cantilevered sprinkler(s) mounted on a central stand. The sprinkler boom rotates about a central pivot.

Center pivot - An automated irrigation system consisting of a sprinkler line rotating about a pivot point and supported by a number of self-propelled towers. The water is supplied at the pivot point and flows outward through the line supplying the individual outlets.

Low Energy Precision Application (LEPA) - discharges water between alternate crop rows planted in a circle. Applicators are located 12 to 18 inches above the ground and apply water with use a “bubble” pattern; or drag socks or hoses that release water on the ground. Typical operating pressures are 6 psi or less. LEPA is applicable to center pivot or lateral sprinklers.

Low Elevation Spray Application (LESA) - applicators are positioned at12 to 18 inches above ground level and usually spaced 60 to 80 inches apart, corresponding to two crop rows. Nozzle pressures as low as 6 psi may be used. Crops may or may not be planted in a circle. LESA is applicable to center pivot or lateral sprinklers.

Mid-Elevation Spray Application (MESA) - water applicators are located approximately midway between the mainline and ground level. MESA applicators may be spaced anywhere from 60 to 120”. Pressures range from 6 to 30 psi depending on the type of applicator selected. MESA is applicable to center pivot or lateral sprinklers.

VRI – Variable Rate Irrigation- Automatically adjusts the water application based on location in the field. The applied amount can be varied by adjusting the speed, the flow of the applicator, or the speed of application and flow of the applicator. This can be done by sector, segment, or sector and segment of the field. This can be applied to both center pivot and lateral sprinklers

Lateral move - An automated irrigation machine consisting of a sprinkler line supported by a number of self-propelled towers. The entire unit moves in a generally straight path and irrigates a basically rectangular area. Sometimes called a ‘‘linear move’’.

Hand move - Sprinkler system which is moved by uncoupling and picking up the pipes manually, requiring no special tools.

Side-move sprinkler – A sprinkler system with the supply pipe supported on carriages and towing small diameter trailing pipelines, each fitted with several sprinkler heads.

Side-roll sprinkler (Wheel line) –The supply pipe is usually mounted on wheels with the pipe as the axle and where the system is moved across the field by rotating the pipeline by engine power.

Solid set - System which covers the complete field with pipes and sprinklers in such a manner that the entire field can be irrigated without moving any of the system.

**Microirrigation** - The frequent application of small quantities of water as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line. The microirrigation method encompasses a number of systems or concepts, such as bubbler, drip, trickle, line source, mist, or spray.

Point-source - Water is discharged from emission points that are individually and relatively widely spaced, usually over ~3 ft.

Line-source - Water is discharged from closely spaced perforations, emitters or a porous wall along the lateral line. This consists of tape or hose with integrated emitters with outlet spacing’s less than 3 ft.

Spray irrigation - The application of water by a small spray or mist to the soil surface, where travel through the air becomes instrumental in the distribution of water. Discharge rates for point-source spray emitters are generally lower than 60 gal/h.

Subsurface irrigation (SDI) - The application of water below the soil surface. The emitters have discharge rates generally in the same range as drip irrigation. This method of water application is different from and not to be confused with the method where the root zone is irrigated by water table control, herein referred to as subirrigation.