Mekhlis Suleimenov, Assistant Regional Coordinator, ICARDA-CAC
(International Center of Agricultural Research in the Dry Areas - Central Asia and Caucasus)

Northern Kazakhstan and Western Siberia covers vast region north of 500 of Northern Latitude and between 60-900 of Eastern Longitude. Soil and climate characteristics are similar to Canadian Prairies: mostly black and chestnut soils combined with semiarid climate. Small grains are occupying almost all cropland, primarily spring wheat. Second important crop is spring barley. On average about 15% of cropland is devoted to summer fallow. Thus, small grains are grown during two to five years continuously with summer fallow practices once in three to six years.

There are different strategies on cropping practices on the farms where direct seeding has been implemented. Some farms increased area under summer fallow from 20% to 33% of cropland area while the others got rid of summer fallow at all. Cropping composition also varies from sticking to entirely spring wheat to diversified cropping including introducing food legumes like field pea, row crops like sunflower and corn.

Conventional tillage and seeding equipment used in the region is conservation agriculture since late 1960s including blades and sweeps used for tillage in the fall, needle harrow in early spring, disk, heavy duty or field cultivator to control weeds because of delayed seeding of small grains (second half of May) and seeding with cultivator-drill. Transition to direct seeding started in the beginning of new century. It was associated with establishment of private businesses in agriculture. At the beginning of 1990s the Soviet system of agricultural production on state controlled farms collapsed and new farm types based on private business got started. During first decade most farms got bankrupted and were made to run farms in primitive ways just seeding and harvesting. By the end of 1990s grain business got established and started giving good returns. In new conditions farmers and farm managers started developing new strategies trying to make them more economical dropping some agronomy practices like many tillage operations. They realized that tillage has been used mostly to control weeds but they can be successfully controlled by chemicals.

First version of direct seeding has been based on using common stubble drills equipped with cultivator duck-foot. Several tillage operations including tillage in the fall, in early spring and seedbed preparation were eliminated and replaced by chemical weed control. Later flexi-coil planters became available and used on large farms. Presently no-till planters are developed on the base of cultivator-drill but duck-foots are being replaced by hoe type no-tillage opener with cutting disk coulter. This technology was developed at the Shortandy Grain Center, Kazakhstan as activity of a FAO funded TCP in Kazakhstan and tested on four farms. In southwestern Siberia a large farmer Mr. V. Shnider has been using John Deer no-till planters on several thousand hectares.

Most obvious benefit from direct seeding as compared traditional tillage practices and cropping systems are as follows: saving fuel (3 times), higher work productivity and soil conservation. On whole, cost of production is very close thanks to costly herbicides. With higher work productivity one can do sowing in short time which means have another benefits through sowing in adequate seeding time.

Keys for successful direct seeding for direct seeding growers are as follows: low farming culture associated with poor quality machinery including using widely obsolete equipment, poor quality seeds resulting in
poor crop emergence, weed infestation, abundant volunteer crops. Farmers do tillage just to prevent soil compaction and weed infestation. Lack of proper chemicals to control weeds, uneven soil surface to ensure good placement of seeds are common reasons for failures.

Future of direct seeding will depend on how successful will be agricultural business in the region. With more resources farmers will be able to improve farming quality by introducing better machinery and equipment. This will enable them to adopt rotations with less summer fallow and more diversified cropping pattern. Successful adoption of direct seeding will go alongside with improved farming culture. Successful story of Mr. Shnider who farms very efficiently 28,000 ha without summer fallow in steppe very clearly indicates that he has improved dramatically farming culture by introducing John Deer tractors, combines and equipment including no-till planters.

In the region of northern Kazakhstan and southwest Siberia a concept of direct seeding is relatively new and most farmers have no idea about it. Demonstrations on the one hand and providing the best machinery and chemicals at reasonable prices to the market on the other hand will be critical for wide adoption of these technologies.