Technology Fact Sheet

Sector	**Agriculture**
Adaptation needs	1. Higher adaptability to more frequent droughts 2. Higher adaptation to limited natural resources 3. Higher adaptation to prices vulnerability for agricultural products and resources in the globalized economy
Technology Name	**Conservation tillage with herbicides for sunflower** [i]
How this technology contributes to adaptation	• Minimum tillage in crop rotation contribute to the reduction of soil erosion and uncompensated losses • By reducing soil erosion and mineralization losses of soil organic matter the global warming is decreasing through increased carbon sequestration • By reducing the consumption of fuel as a result of replacing moldboard plow with minimum tillage it is possible to adapt to the limited sources of non renewable energy, to the fluctuation of prices for non renewable sources of energy at the international level • By keeping mulch on the surface it is possible to reduce evaporation of soil moisture and to increase the stoks of soil moisture in the soil. So, the negative influence of drought can be reduced
Background/Notes, Short description of the technology	The moldboard plow is replaced by soil tillage with combinator. So, three technological operation (in the previous model of technology) are replaced by one.
Implementation assumption.	Minimum tillage system (conservation tillage) is studied in long-term field experiments at the Research Institute of Field Crops „Selectia". Research results are available for farmers throuFarmers are visiting experimenatal fields of the institute with different systems of soil tillage. Each year we are organising seminars for farmers – at least two times (in the spring, before sowing spring crops and in the fall – before sawing winter cereal crops). During these seminars farmers can see the equipment in operation for minimum tillage in crop rotation.
Costs per 1 ha	Total costs per 1 ha only for conventional tillage is 37 lei for fuel and 63,1 lei for labor. By using chisel plow the total cost only for tillage is: fuel – 20 l/ha and salary – 26,9 lei/ha
Country social development priorities	• Reducing the pouverty • Increasing the employment of people • Increasing the rates of burth and decreasing the mortality of people • Improving the system of health care for people
Country economic priorities - economic benefits	• Increasing the sustainability of agricultural sector, including profitability • Reducing the dependence from non renewable sources of energy and their derivates (mineral fertilizers and pesticides) • Creating condition for the development of smal and medium enterprises
Country enviromental priorities (enviromental benefits)	By implementing a conservative system of soil tillage it would be possible to increase the environmental benefits through: • Higher carbon sequestration which allows to reduce global warming • Reduction of soil erosion and better storage of the soil moisture • Reduction of pollution of ground water with nitrates • Reduction of GHG emision as a result of lower amount of burned fuel

Social benefits	• Maintaining soil fertility of soil as the basis for maintaining and increasing productivity for achieving economic stability for the welbeeing of people • Improving health of people as a result of increased soil functionality and decreased inputs (mineral fertilizers, pesticides) • More people remaining in rural communities
Other consideration and priorities (such as market potential)	• Decreasing the expenditures for fuel will lead to higher competitivness of agr. producers at the local, regional and international markets • Providing self – sufficiency of food at different levels
Capital costs for one unit of:	Chisel plow + disks – 80.000 lei The required amount for the total area of field crops in Moldova: - Chisel plow – 40.000 (the productivity per day is 6 ha and the optimal time for doing such work is 5 days) The total costs of tillage equipment is: - Chisel plow – 3200 mln.lei or 256 mln.am.doll.
Operational costs (without maintenace costs)	Use of fuel per 1 ha • For chisel plow – 20 lit.x 15 lei = 300 lei The cost of fuel for total area: • For chisel plow – 360 mln.lei or 28,8 mln.am.doll
Daily supply capacity perfacility	The chisel plow can tillage 6 ha per day
Upscaling potencial	Area to be tillaged consists: for spring crops – 1.200.000 ha

[i] This fact sheet has been extracted from TNA Report - Technology Needs Assessment for climate change adaptation - Republic of Moldova. You can access the complete report from the TNA project website **http://tech-action.org/**