Technology Fact Sheet

Sector	**Agriculture**
Adoptation needs	1. Higher adaptability to more frequent droughts 2. Higher adaptation to limited natural resources (water, non renewable sources of energy, soil) 3. Higher adaptation to prices vulnerability for agricultural products and resources (non renewable sources of energy) in globalized economy
Technology Name	**Conservation system of soil tillage for winter wheat with herbicides**[i]
How this technology contributes to adaptation	1. Minimum tillage in crop rotation contributes to the reduction of soil erosion and uncompensated mineralizational losses 2. By reducing soil erosion and mineralization losses of soil organic matter the global warming is decreasing through increased carbon sequestration 3. 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 4. By keeping mulch on the soil 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 is replaced by soil tillage with combinator. So, three technological operation (in the previous model of technology) are replaced by one.
Implementation assumption. How the technology will be implemented and diffused across the subsector	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 through publication, recommendation, TV, radio, newspapers etc. Farmers are visiting the experimental plots of the institute. We are organising also seminars for farmers – at least two time during the year – before sowing in the spring after harvesting in the fall.
Costs per 1 ha	Combination T-150+Sunflower CN-3 The economy of fuel by using combinator for winter cereal crops instead of moldboard plow consists 15 l/ha and the economy for salary 50,1 lei/ha
Country social development	• Reducing the pauverty • 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	• 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
Enviromental benefits	• Higher carbon sequestration which allows to reduce global warming • Reduction of soil erosion and better storage of soil moisture • Reduction of pollution of ground water with nitrates • Reduction GHG emision as a result of lower amount of burned fuel
Social benefits	• Maintaining soil fertility 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:	Combinator (CN 3-3) – 110,000 lei The required amount for the total area of field crops in Moldova: - combinators – 7500 (the productivity per day is 12 ha and the optimal time for doing such work is 5 days) The total costs of tillage equipment is: - combinators – 825 mln.lei which is equivalent to 66 mln.am.doll.
Operational costs (without maintenace costs)	Use of fuel per 1 ha 10 l x 15 lei = 150 lei The cost of fuel for total area by tillaging soil with combinator – 67,5 mln.lei, which is equivalent to 5,4 mln.am.doll
Daily supply capacity perfacility	The combinator can tillage 12 ha/day
Upscaling potencial	Area to be tillaged consists: for winter cereal crops – 450.000 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/**