Technology Fact Sheet

Sector	Agriculture
Name of technologies	**Vetch field as green fertilizer as successive into existing crop rotation.**[i]
How this technology contributes to adaptation	A crop of vetch (about 6 t / ha of dry weight containing 4% of nitrogen), and roots (about 4t/ha dry weight containing 2% of nitrogen) accumulates about 10 tons of organic matter in soil, which ensures synthesis of about 2.5 t / ha of humus containing about 200kg of nitrogen. This amount of humus is sufficient to create a positive carbon and nitrogen balance in soil during 2 years. The arable layer will become structured, loose, will contribute to a favorable air-fluid and nutrients regime and will increase the plants resistance to drought.
Short description of the technology option sourced from ClimateTechWiki.	This technology contributes to environmental friendliness of agriculture, creating a positive balance of humus and soil carbon, return of about 200 kg of nitrogen into soil, of which 50% are of symbiotic origin, reduces the risk of reduced yields due to climate change.
How this technology will be implemented and spread across the sector?	Technology can be successfully implemented on the entire surface of agricultural soils under any soil tillage system. Vetch as a successive crop used as green fertilizer, shall be sown once in two years after harvesting spiked cereals. Implementation of this technology requires autumn and spring vetch seeds production operation. The autumn vetch shall be planted, as appropriate, in late August or early September.
Costs	Annual expenditures for including vetch as successive crop used as green fertilizer in the agricultural systems, are 85 € / ha / year per harvest.
Country social development priorities	This technology ensures a long-term preservation of soil fertility - the main means of production of the country, protects the land from desertification processes, creates economic prerequisites for replacing the existing system of subsistence agriculture with sustainable agriculture based primarily on employment of natural processes, biological and renewable resources and only secondarily - purchased resources. Preserved internal resources, the soil with its characteristics, water, biodiversity, etc., are a prominent feature of sustainable agriculture and subsequently, of combating desertification and land degradation caused by climate aridization.

Country economic development priorities (economic benefits)	The total crop growth over the whole period of vetch green mass action (2 years) is 2.0 t / ha grain units or - 400 € / ha in monetary terms. The net benefit is 315 € / ha / year. If applied regularly, this technology contributes to a positive balance of soil carbon, excludes CO2 emissions, reduces the need to purchase and apply nitrogen fertilizers by 80-90 percent.
Country environmental development priorities (environmental benefits)	It stops soil degradation, makes the humus and soil carbon balance positive or well-balanced, cardinally improves the soil biota status, increases resistance of soil to pollution and of plants to drought.
Social benefits	The social - economic effect of this technology implementation will be the following: it will increase the turnover and quality of agricultural production on arable soils, wellbeing of rural population, and decrease migration.
Other considerations and priorities	The agricultural production process becomes more environment friendly.
Capital (investment) costs	It is necessary to purchase an organic waste chopper similar to the ones manufactured by Lemken - worth 20 thousand €.
Operational and maintenance costs	Organization of the seed production process or purchasing of vetch seeds is worth 58 € / ha / year. These expenses are included in the cost of technology. Total costs for all operationl works are 11 600 000 euro. Total costs per technology are:11 620 000 euro.
Growth potential	The weight of this technology on the market will grow along with environmental friendliness of agriculture

[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/**