Mongolian State University of Agriculture

SYNERGIES BETWEEN ADAPTATION TOOLKITS & METHODS MONGOLIAN AGRICULTURE SECTOR

2012.03.12-13 Bangkok

Adaptation toolkits and methods…

… in animal husbandry

… in agriculture

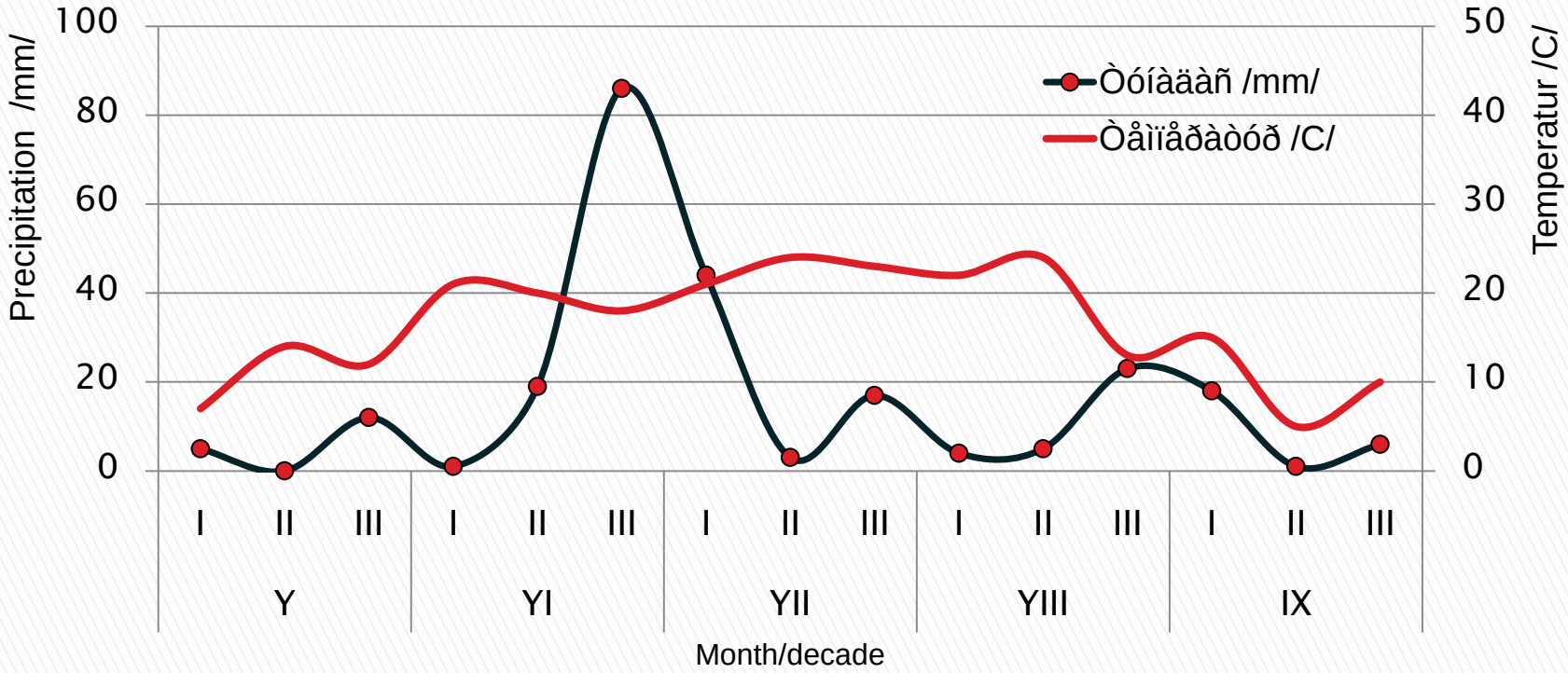
Differences of climatic conditions during crop growth period

As the examples, results of meteorological surveys conducted in Nart teaching and research center at MSUA are mentioned.

In the recent years, particularly in 2008-2010, the weather condition did not repeated in the same time during the growth periods of plants.

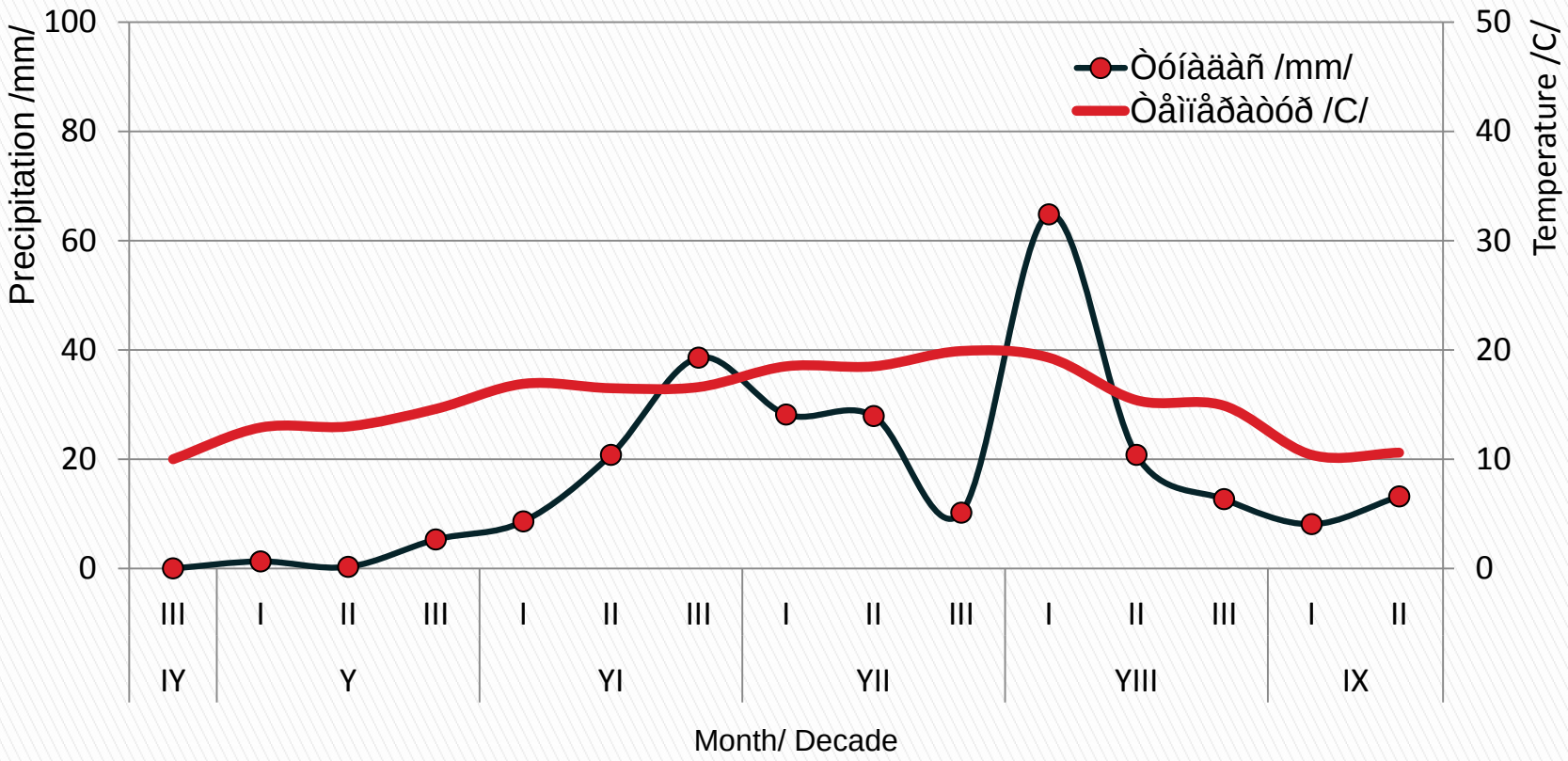
In other words, the most suitable periods with enough moisture and temperature were occurred in the middle and end, or in the beginning and end of growth.

In this situation the use of **changeable technology** worked out by the researchers gave its good results.



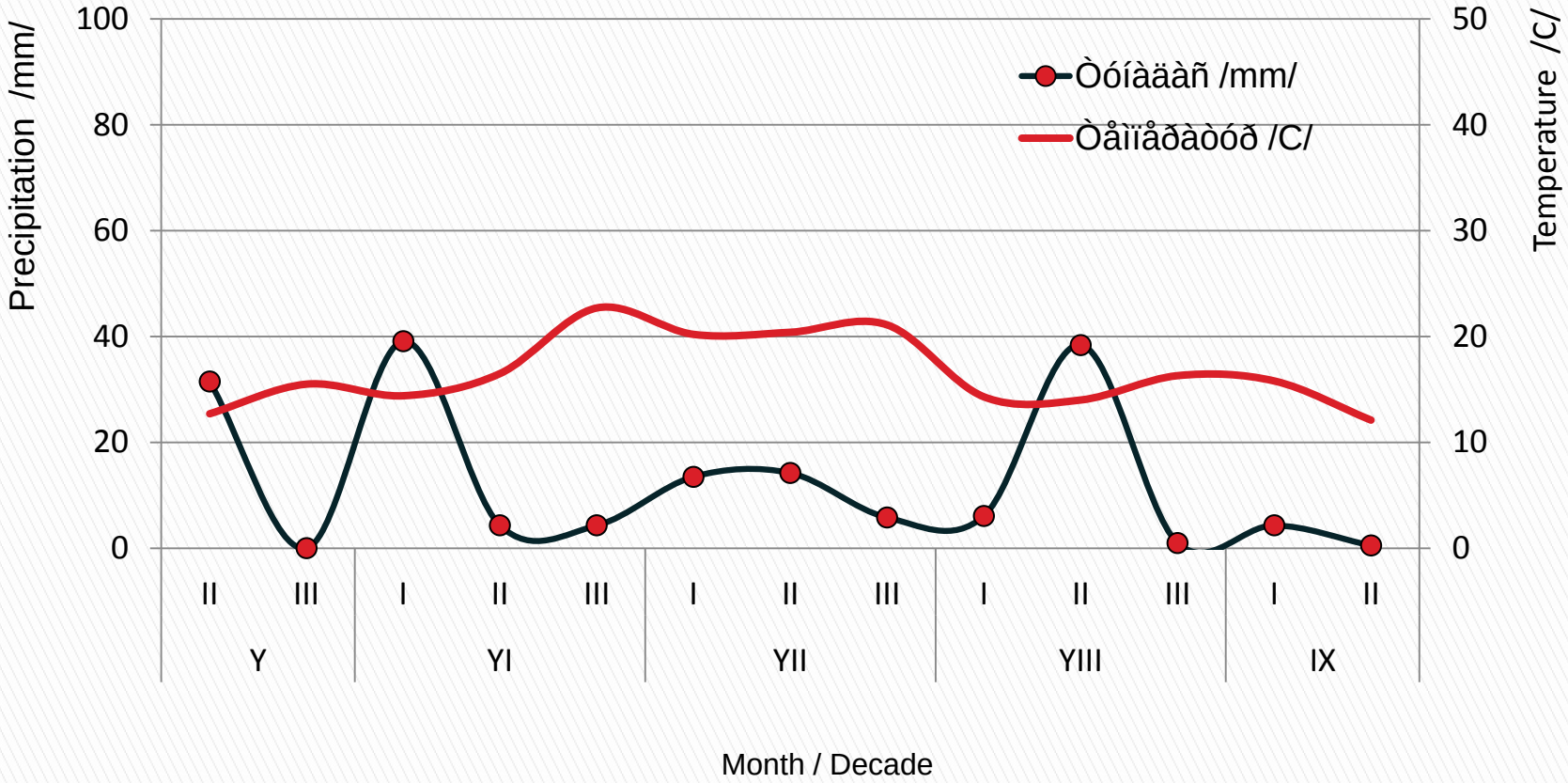
Climadiagram-2008

Comparison of air temperatures in each months revealed start period of crop growth or April and May in 2008 were relatively cooler, third decade of June and first decade of July were humid, while precipitation lacked in remaining periods.



Climadiagram-2009

In 2009 June, July relatively warmer and September were cooler, third decade of June and first decade of August were humid, while precipitation lacked in remaining periods.



Climadiagram-2010

April and May, 2010 were cooler, first decade of June and second decade of August were humid, while precipitation lacked in remaining periods.

Duration of sudden cold exposures

Year	Late spring			Early autumn			Periods without cold /days/
	Date	Intensity (^{0}C)		Date	Intensity (^{0}C)		
		Air	Ground		Air	Ground	
2008	29 May	-4.3	-4.5	22 Sept.	-6.8	-6.8	115
2009	28 May	-4.5	-4.5	5 Sept.	-4.3	-5.3	99
2010	10 May	-2.3	-3.1	16 Sept.	-0.3	-1.3	128

Days without cold for 3 consecutive years were 99-128 or differences by 16-29 days reveal climatic conditions are very unstable. It is also an evidence that following of the same technology in all crop production practices is impossible.

- The earlier predictions of weather forecasts by people will advance activities tended to increase their own profits or minimize any hazards via making arrangements.

Convertible crop production technology

…which is used in spring planting in association with seasonal climatic conditions, ensures full utilization of precipitation and heat reserves during plant growth period.

Adjustment of plantation period, seed norm, seeding depth, and varieties of grain crop, and fertilizer types and dosage to climatic conditions can minimize change crop productions.

- As a result of gradual and slight increase of irrigated crop fields it reached 31000 ha by 2009. This is a selected method, producing significant outcomes for shorter period for combating aridification. However it consumes greater costs for construction, and therefore increase of fields area is slower.

- Production practices show maximal crop production in irrigated conditions in both warmer gobi and steppe regions is 45-50 centner per ha and in central region 20-26 centner per ha.

Changing the variety of seed:

In order to improve adaptation capacity of seeds it is necessary to develop the new variety of seeds with adaptable characteristics such as early ripe and resistant to heat and diseases.

Wheat of a new variety Darkhan-144, developed in Teaching and Research Institute of Crop Sciences has 16 centner/ha yield in dry years, while wheat of Darkhan-74 variety gives 27.9-34.0 centner per ha products.

However, it is wise to make clear that above is not maximal potential level for these varieties.