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MARS AGROMETEOROLOGICAL

Rice Monitoring in Europe

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First part of the season

The good yield potential depicted for the main EU-27 producer countries keeps total production above the long term average

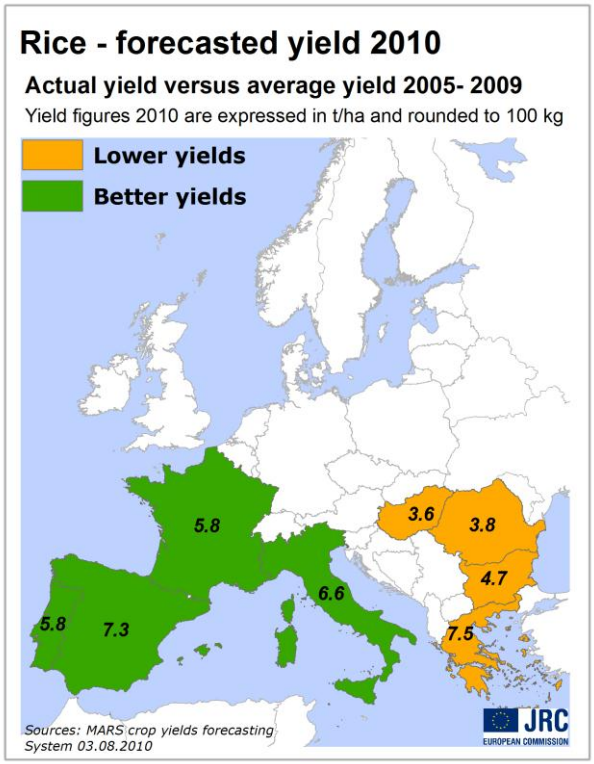
Highlights

Rice production at EU-27 level is forecast to be close to last year's values (+1.7%) but characterized by a reversal in trend with respect to 2009. In fact, in contrast with what has been observed last year high yield potentials are depicted for the main rice districts whereas lower expectations are estimated in eastern countries. The increase of surface in Italy (+3.8% compared to 2009) and Spain (+2.6%) counterbalances the decrease observed for France (-15.8%) and Portugal (-3.1%) leading to a slight growth of rice area at EU-27 level (+1.5%).

MARS yield forecast

Country	Yield t/ha					Production x 1000 t.				
	2009*	MARS 2010 forecasts	Avg 5yrs	%10/09	%10/5yrs	2009*	2010	Avg 5yrs	%10/09	%10/5yrs
EU27	6.7	**6.7**	6.5	+0.2	+2.4	3025	**3076**	2721	+1.7	+13.0
BG	5.0	**4.7**	4.7	-5.6	-0.2	39	**36**	31	-5.6	+16.1
ES	7.5	**7.3**	7.1	-3.1	+3.1	900	**894**	769	-0.6	+16.3
FR	5.7	**5.8**	5.7	+2.1	+2.9	138	**119**	105	-14.0	+12.7
GR	7.1	**7.5**	7.7	+5.6	-3.0	205	**216**	200	+5.6	+8.0
HU	3.8	**3.6**	3.7	-5.0	-1.4	10	**10**	9	+0.5	+9.2
IT	6.5	**6.6**	6.4	+1.8	+3.3	1555	**1642**	1467	+5.7	+12.0
PT	5.7	**5.8**	5.7	+2.3	+2.3	159	**158**	146	-0.8	+7.7
RO	5.2	**3.8**	4.1	-27.4	-7.0	69	**47**	33	-32.1	+40.9

* Source EUROSTAT New Cronos and EES: last update 2010-07-30



At EU-27 yields are forecast to be higher than the 5-years' average (+2.4%) and close to last year (+0.2%).

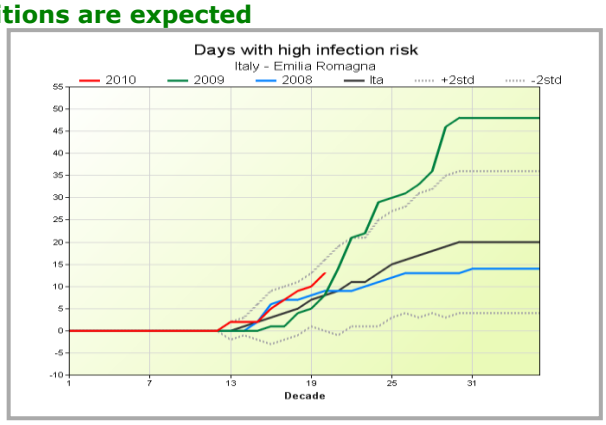
A good potential is expected for the main rice districts in Spain (Andalucía and Extremadura), Italy (Piemonte) and France where meteorological conditions boosted the biomass accumulation. This avoided with some exceptions, the incidence of biotic and abiotic damages. Rice yield forecasts are: 7.3 t/ha (+3.1% with respect to the 5-year average) for Spain, 6.6 t/ha (+3.3%) for Italy and 5.8 t/ha (+2.9%) for France.
Despite the possible risk of spikelet sterility occurring on earlier varieties, the yield potential forecast for Portugal is satisfactory and above the 5-years' average (5.8 t/ha, +2.3%).

On the contrary, a suboptimal situation is registered for eastern countries, due mainly to the cold and wet weather conditions which reduced the biomass accumulation rates and enhanced the risk of blast infection especially if temperatures rise in the next dekades. The simulated yield potentials are: for Bulgaria 4.7 t/ha (-0.2% with respect to 2009), for Romania 3.8 t/ha (-7.0%), for Hungary 3.6 t/ha (-1.4%) and 7.5 t/ha for Greece (-3.0%).

Agro-meteorological analysis

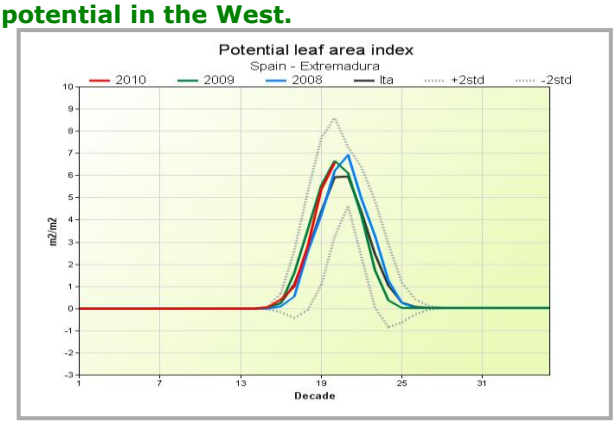
ITALY: despite the hot weather in July good conditions are expected

The high values of global radiation and cumulated temperatures which characterized the first two dekades of July boosted rapidly rice development to an advance of more than one dekade; therefore it seems that leaf senescence has been anticipated especially in the eastern part of the rice district (i.e. Lombardia). Moreover the warm and humid conditions doubled the number of days with high infection risk in the area close to the Po Delta and this might affect biomass accumulation in these areas where crop protection treatments were delayed. Optimal conditions are expected in Piemonte and this seems to be confirmed also by CNDVI profiles.



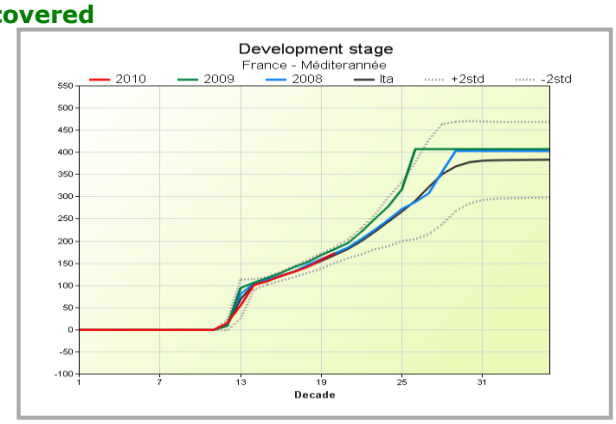
SPAIN: optimal water availability depicts a good potential in the West.

The temperature sum in western regions, with the exception of a drop in June which delayed the start of the season in Andalucía, stayed close to the average allowing a good leaf area development and an optimal biomass accumulation. Given that especially minimum temperatures were above the average also the risk of spikelet sterility should be confined to very few areas of Estremadura. In eastern regions conditions were colder than usual and the low irradiance levels might have delayed crops development penalizing the canopy expansion. Due to sufficient rain the risk of water shortage should be avoided.



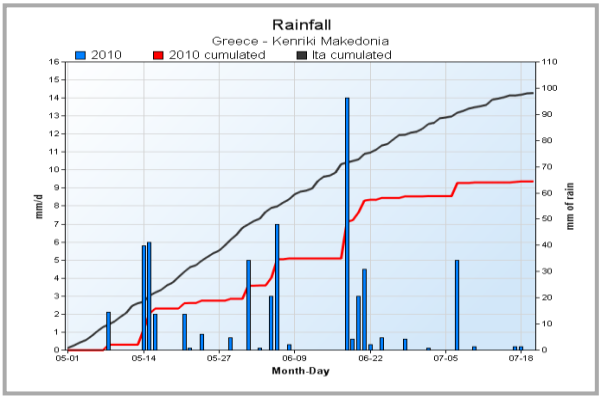
FRANCE: The delay in development has been recovered

The high temperatures recorded in these last dekades allowed the recovery of a slight delay in development that was caused by colder than average conditions. The plants are entering the flowering stage and therefore the high incidence of blast infection risk recorded in the previous dekades might only have affected leaves without causing significant damage to the biomass accumulation potential. Moreover the lack of precipitation in the last weeks further decreased the threat of a more serious infection risk. As long as the advance does not shorten the cycle significantly a good yield potential is expected.



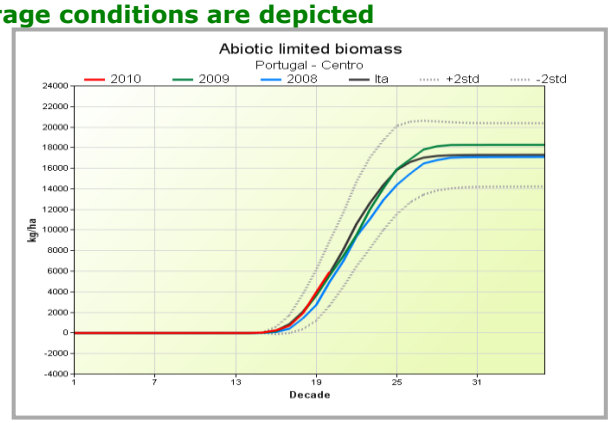
GREECE: good conditions and moderate impact of blast infection

Despite the cumulated rainfall values below the long term average precipitations were well distributed and this, in conjunction with high daily minima, might have enhanced the risk of biotic damages. However the simulated values of blast limited biomass accumulation depict only a moderate reduction in the crops yield potential. High irradiance values pushed the canopy's expansion guaranteeing good values for storage organs formation. Thus an average season is expected and this is confirmed by the CNDVI profiles.



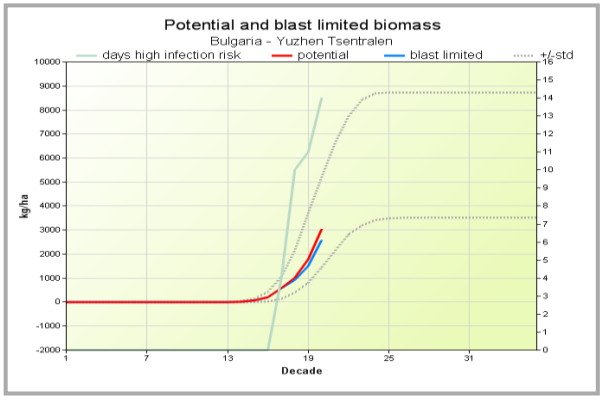
PORTUGAL: despite the spikelet sterility risk average conditions are depicted

The model simulates average conditions in Portugal for developing stage and slightly higher values than LTA for leaf area index depicting a good start of the season. Only in some isolated areas the sudden drop in temperature which occurred after a longer period of high values might have increased the risk of spikelet sterility especially on earlier varieties. Precipitations were sparse in the last month leading to lowered water availability in areas where the water reservoirs were not sufficiently filled but also reducing significantly the risk of blast limitations on the canopy development.



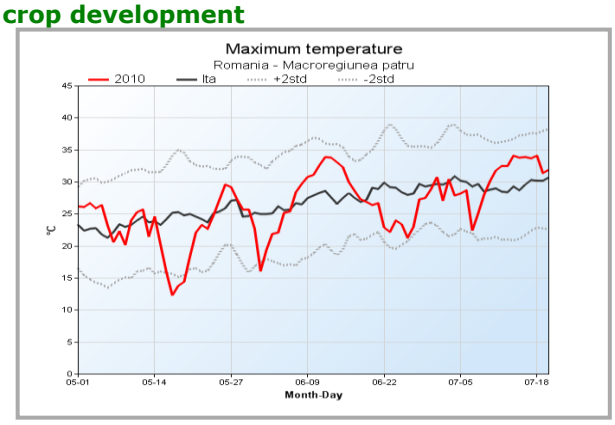
BULGARIA: blast infection risk in the South-west

Maximum temperatures dropped in the last dekades below the average slowing down crop development and reducing the canopy expansion. On the contrary daily minima reached exceptionally high values enhancing, in conjunction with an increase of precipitation, the risk of blast diffusion. In fact the differences between simulated values of potential and blast limited biomass accumulation depict a situation where the infection might have affected the crop in several cases reducing the yield potential mainly in Yuzhen Tsentralen. Better conditions are depicted in the East.



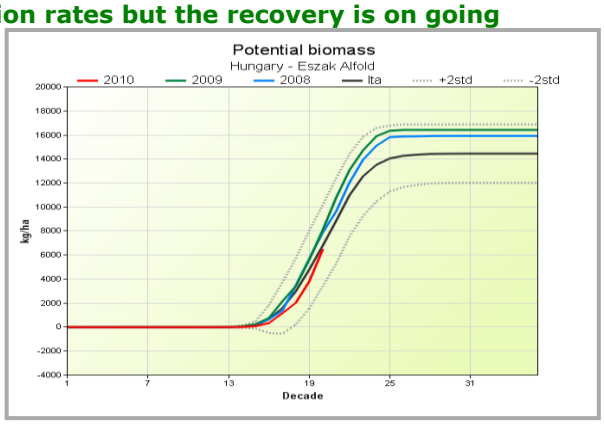
ROMANIA: wet and cold conditions slowed down crop development

Cold and wet conditions characterized the beginning of the season all over Romania leading now to a significant deficit in thermal accumulation and lower-than-the average irradiance values. Cumulated rainfall values are more than 50% higher than normal and some isolated stormy events might have caused lodging. However both canopy expansion and biomass accumulation seem not to have suffered because of the delay in development. In fact the already reached values are satisfactory and no risk of biotic and abiotic damage is depicted.



HUNGARY: low radiation reduced daily accumulation rates but the recovery is on going

In contrast to last year the weather has been exceptionally wet and the scarcity of daily irradiance, coupled with below-the-average thermal sum reduced the daily accumulation rates delaying biomass accumulation and panicle formation. However the recovery has already started therefore a satisfactory yield potential is still achievable. Up to now the risk of blast infection has been negligible but could become significant if these humid conditions persist in conjunction with higher temperatures.



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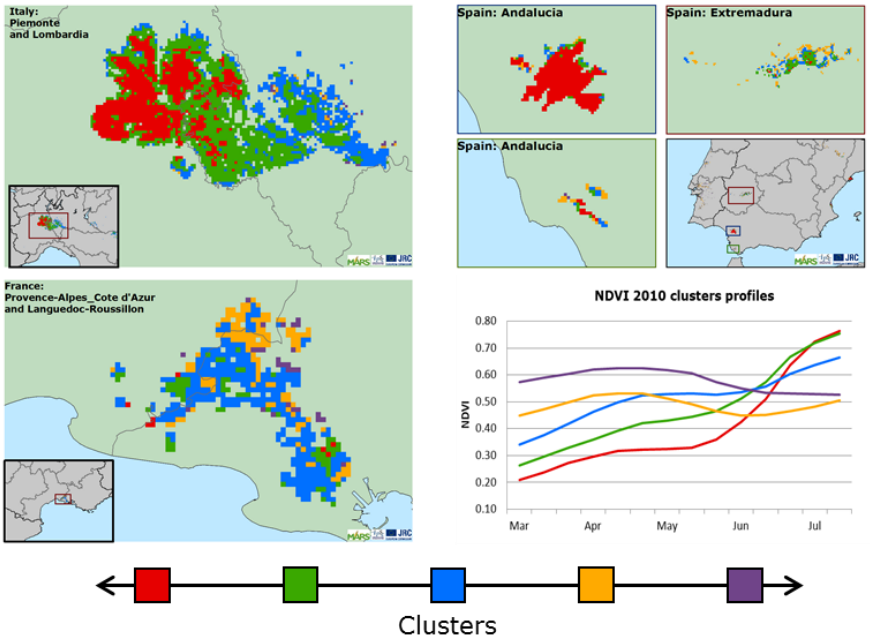
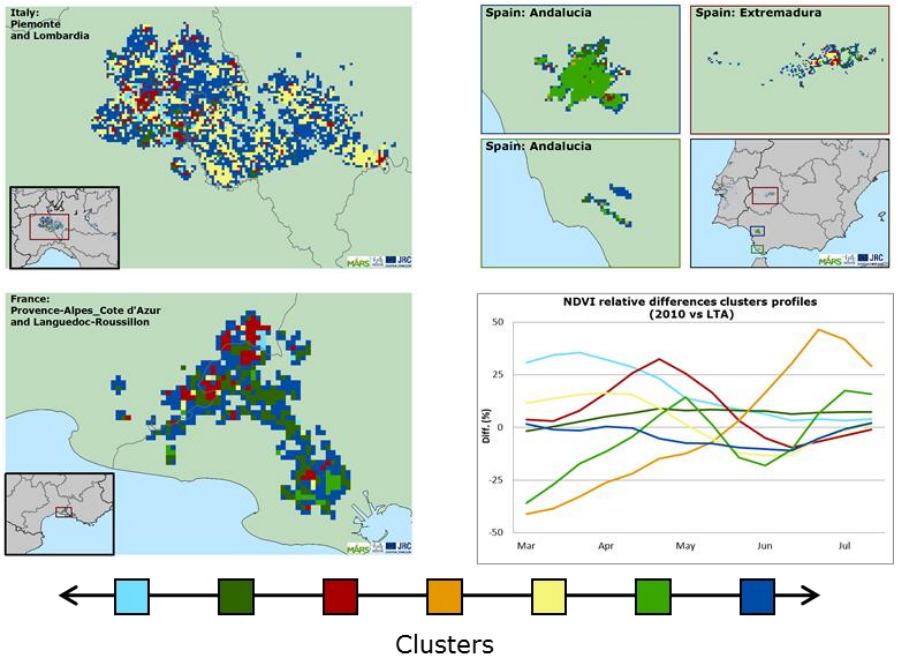
Satellite analysis

The cluster maps below display the NDVI time series for rice from 1st March 2010 until the second decade of July 2010. In Piemonte (**Italy**) rice canopy has almost reached the maximum development while in Lombardia the biomass development is slightly delayed.
In **France** the main rice area has NDVI values around the seasonal ones. In **Spain** regions seem to have a good canopy development, probably due to an optimal water supply thanks to the abundant rainfall in springtime.



The following cluster maps display the relative differences between the NDVI values for the current season and the relative ones of the long term average (LTA: 1998 – 2008). The period of the season considered for the analysis is: 1st March – 20 July. In **Italy** the NDVI values range around the average with slightly delayed conditions. In **France** the main areas have values slightly above the average while the marginal fields show normal values. In southern **Spain** the NDVI is fairly above the average in Andalucía while exhibits average values for the other regions.



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