

# Rice Monitoring in Europe

First part of the season

## Reduction in the total area was compensated by the good yield potential depicted for the main EU-27 producer countries

### Highlights

Rice production at EU-27 level is forecast to be close to last year's values (+0.7%) and is characterized by average yield potential all over Europe. In fact with the exception of very good expectation in France (+10.4%) and Spain (+3.2) yields were around the 5-year average. The decrease in surface at EU-27 level is attributed to the reduction in the cultivated areas in Italy (-0.5% with respect to 2010), Spain (-0.3%) and especially in France (-10.8%) where the lack of rainfall might have further reduced the rice fields.

### MARS yield forecast

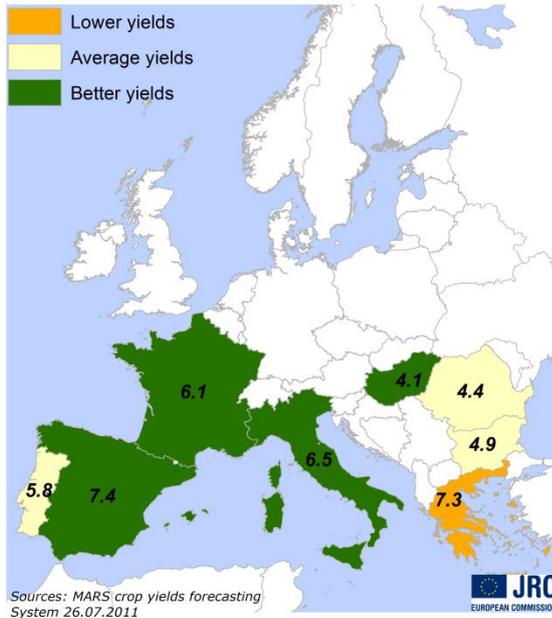
Country	Yield t/ha					Production x 1000 t.				
	2010*	MARS 2011 forecasts	Avg 5yrs	%11/10	%11/5yrs	2010*	2011	Avg 5yrs	%11/10	%11/5yrs
EU27	6.5	6.7	6.5	+1.7	+1.9	3066	3086	2791	+0.7	+10.6
BG	5.2	4.9	4.9	-5.9	+0.6	44	41	35	-5.9	+18.6
ES	7.6	7.4	7.2	-2.2	+3.2	926	902	781	-2.6	+15.5
FR	5.0	6.1	5.5	+22.5	+10.4	118	129	109	+9.2	+18.4
GR	6.8	7.3	7.5	+7.6	-2.8	230	229	207	-0.2	+10.8
HU	4.4	4.1	3.9	-4.9	+5.6	8	7	10	-12.9	-24.1
IT	6.3	6.5	6.4	+2.6	+1.3	1565	1598	1496	+2.1	+6.8
PT	5.9	5.8	5.8	-1.3	+1.0	165	169	155	+2.6	+9.0
RO	5.0	4.4	4.4	-11.7	+0.7	62	58	43	-6.1	+33.9

\* Source EUROSTAT New Cronos and EES: last update 2011-07-13

### Rice - forecasted yield 2011

#### Actual yield versus average yield 2006- 2010

Yield figures 2011 are expressed in t/ha and rounded to 100 kg



At EU-27 yields are similar with respect to the 5-years' average (+1.7%) and to last year (+1.9%).

A good potential is expected for the main rice districts in Spain (*Andalucía and Extremadura*), Italy (*Lombardia*) and France where meteorological conditions boosted the biomass accumulation. Water availability was different in these countries and influenced the incidence of biotic and abiotic damages. Rice yield forecasts are: 7.4 t/ha (+3.2% with respect to the 5-year average) for Spain, 6.5 t/ha (+1.3%) for Italy and 6.1 t/ha (+10.4%) for France.

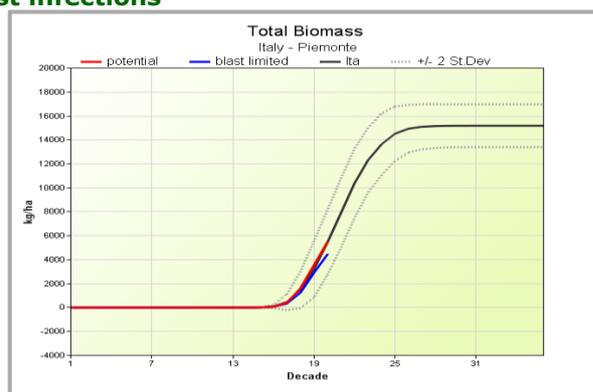
Despite the possible risk of spikelet sterility occurring on earlier varieties, the yield potential forecast for Portugal is on average (5.8 t/ha, +1.0%) but below that of last year (-1.3%).

Less optimal conditions are observed in eastern countries, due mainly to the cold (in Greece) and wet weather conditions which reduced the biomass accumulation rates and enhanced the risk of blast infection especially if temperatures rise in the next decades. The simulated yield potentials are: for Bulgaria 4.9 t/ha (+0.6% with respect to the 5-year average), for Romania 4.4 t/ha (+0.7%), for Hungary 4.1 t/ha (+5.6%) and 7.3 t/ha for Greece (-2.8%).

## Agro-meteorological analysis

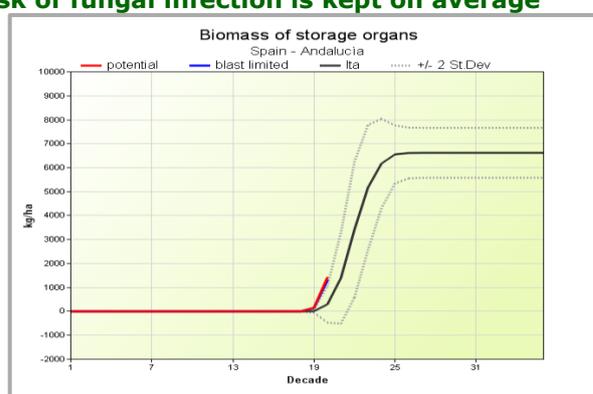
### ITALY: humid conditions increased the risk of blast infections

The hot conditions at sowing boosted initial growth leading to an advance in development. This slowed down as a consequence of the heavy rains and the colder than usual temperatures in June. The intense precipitations increased the number of days with high infection risk and the higher-than-usual incidence of blast infection reduced the total green biomass accumulation. The impact on green canopy can be observed in the profile of leaf area index which did not reach the average values. These conditions were more persistent in the western part of the main district where humidity has been even higher than in Lombardy.



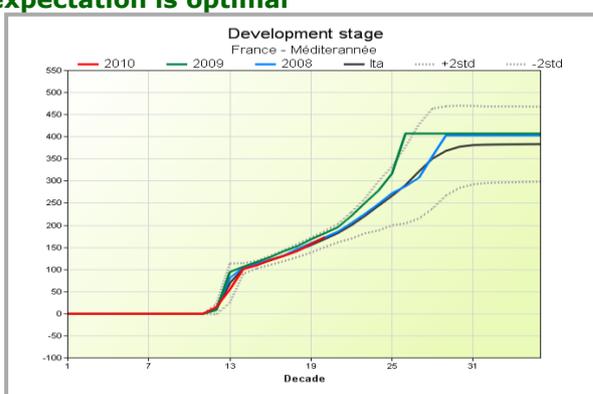
### SPAIN: despite the abundant precipitations the risk of fungal infection is kept on average

With the exception of Cataluña and Valencia thermal sum was higher than average leading to an advance in development of more than one decade. Large areas are already entering in yield formation. Due to the abundant precipitation since the beginning of the season in Andalucía sowings occurred without any delays and the risk of water shortage should be avoided. Simulated values of leaf area index depict an optimal canopy development and the relatively reduced number of high infection risk should guarantee an optimal biomass accumulation rate. The development of storage organs already started depicting a good season.



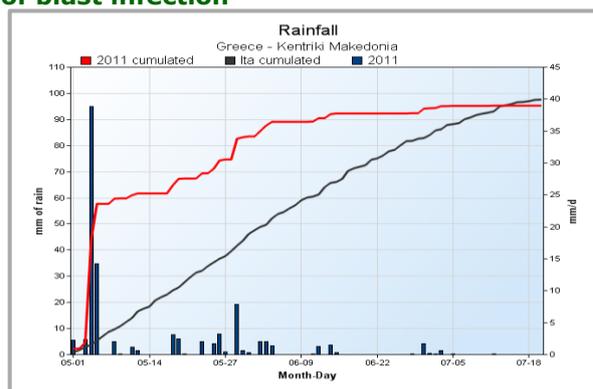
### FRANCE: rice areas will be reduced but the yield expectation is optimal

It is very likely that cultivated areas have shrunk because of the reduced rainfall; this is confirmed by the CNDVI profiles shown in the cluster maps depicting clearly how pixels towards the boundary of the rice areas do not show the typical profile of rice plants. Thanks to the dry conditions, even if rather hot, the risk of infection was very low and the incidence of fungal infections can be considered as negligible. Canopy expansion has been exceptionally positive allowing an accumulation of biomass in storage organs which is consistently above twice the standard deviation. Moreover the total absence of drops in night temperature should guard the crop from the occurrence of spikelet sterility.



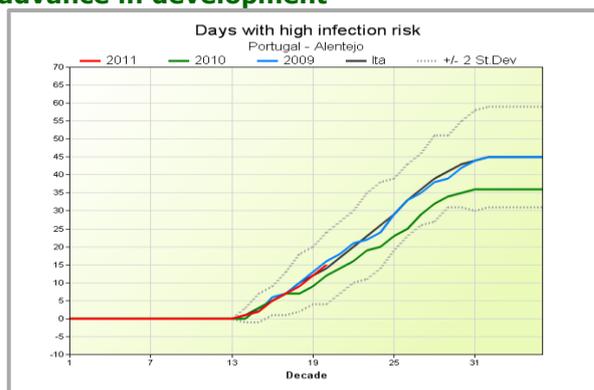
### GREECE: humid conditions and moderate impact of blast infection

The wet and humid conditions at the beginning of the season delayed the initial crop development which has recovered only now. Even if the number of days with high infection risk is below the average the persistent humid conditions enhanced the impact of biotic damages on biomass accumulation. The simulated values of potential leaf area index show a positive canopy expansion however most likely incidences of blast might trickle down the potential yield below the average.



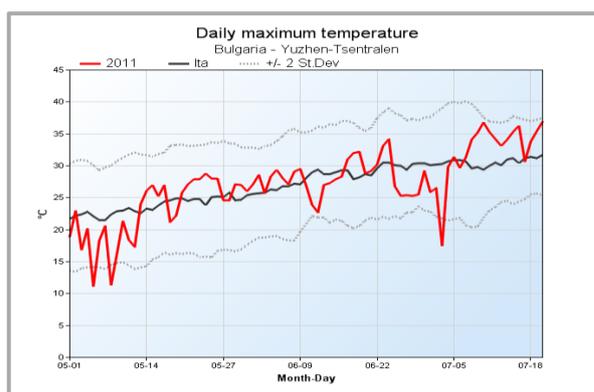
### PORTUGAL: colder conditions in July reduced the advance in development

The beginning of the season was characterized by warm and humid conditions which boosted crop development above the average. Starting from the beginning of July a cold air irruption slowed down crop growth bringing the simulated values of development stage back to average. Rice did not reach yet the flowering stage and this should have protected the crop from the occurrence of spikelet sterility. Due to the colder temperatures observed in these last decades the incidence of blast infections should be reduced especially on storage organs.



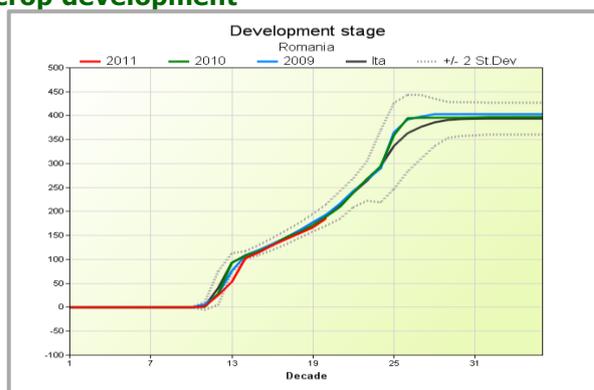
### BULGARIA: Delayed phenological development

Maximum temperature dropped below the average in the early growth stage of the crop and in the last decades slowing down crop development and reducing the canopy expansion. 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*. However, there is recovery at a later stage suggesting average biomass accumulation.



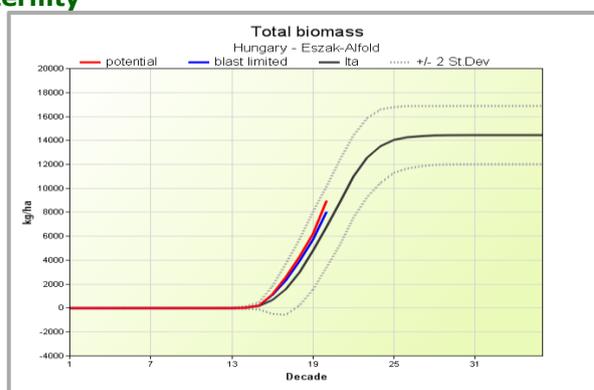
### ROMANIA: wet and cold conditions slowed down crop development

Cold conditions characterized the beginning of the season in the south-east region of Romania leading to a deficit in thermal accumulation, to an eventually delayed crop development and to less biomass accumulation. However both canopy expansion and biomass accumulation seem not to have suffered significantly. There could be a yield reduction in the western part due to blast incidence.



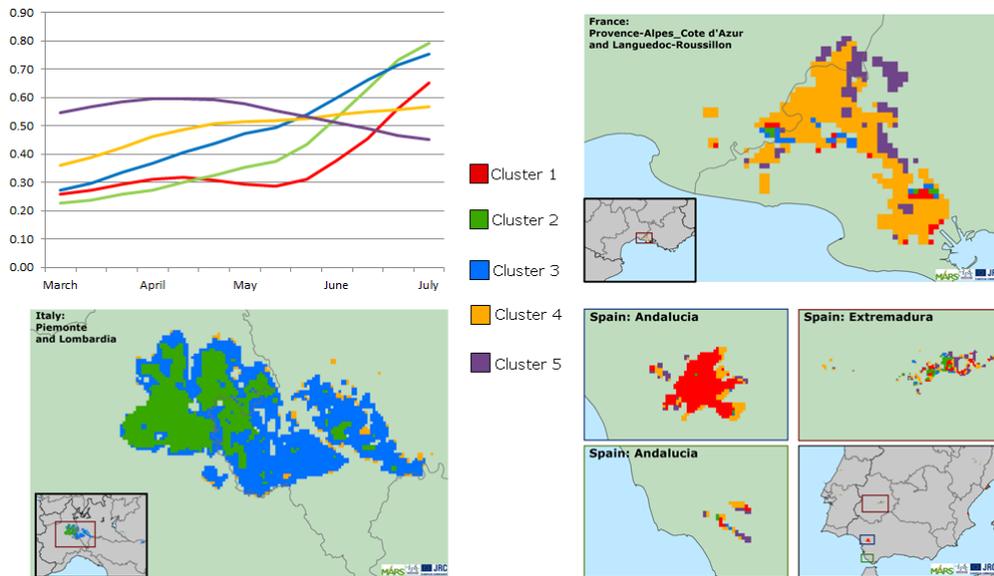
### HUNGARY: Average production despite spikelet sterility

A cold event at the onset delayed slightly the phenological development of the crop. However the recovery has already been observed therefore a satisfactory yield potential is still achievable. Until now a risk of spikelet sterility of 15-20% has been noticed which might hamper the final yield.

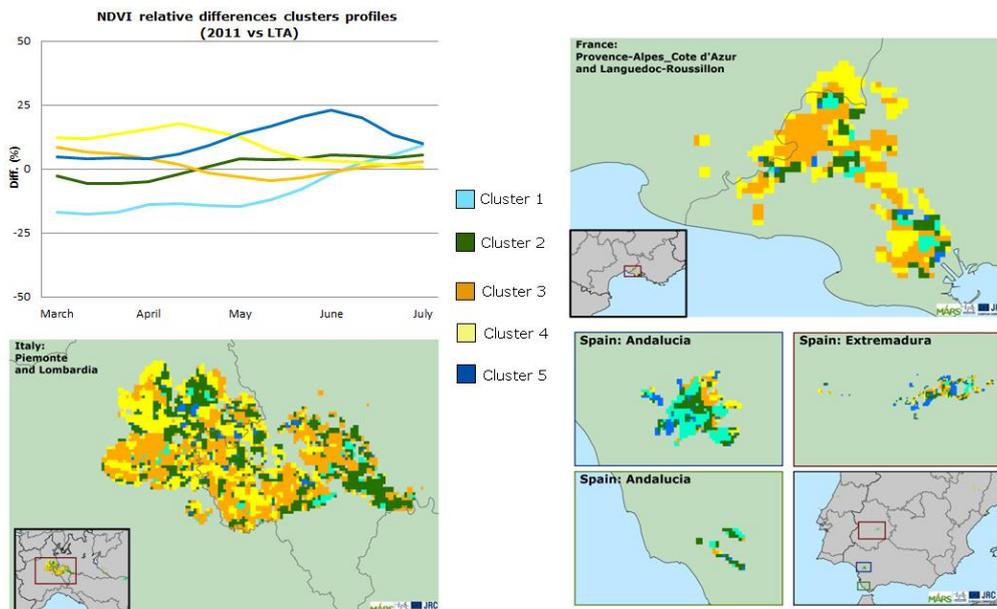


## Satellite analysis

The cluster maps below display the NDVI time series for rice from 1st March 2011 until the 10th July 2011. The first map shows the NDVI absolute values for the main rice regions in Europe. In **Piemonte** and **Lombardia (Italy)** rice canopy has almost reached the maximum development with NDVI values ranging around 0.80. In **France** the main rice area has NDVI values around the seasonal ones but marginal rice fields were probably not sowed at all due to the lack of water (see purple profile). **Spain** regions, mainly **Andalucía**, seem to have a good canopy development, with NDVI values approaching 0.70. In none of the regions plants come to flowering stage.



The following cluster maps display the relative differences between the NDVI values for the current season and the long term average (LTA: 1998 – 2010). The period of the season considered for analysis is: 1 March – 10 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 but around the normal for the LTA. In southern Spain the NDVI is slightly higher than in Andalucía while for the other regions is moving around the normal values.



Data used from: MARS remote sensing database \ SPOT-VGT. Rice Mask from CLC 2000

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<http://mars.jrc.it/mars/About-us/AGRI4CAST/MARS-Bulletins-for-Europe>.

MARS agrometeorological data and data processing is available at <http://www.marsop.info>.

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\*MARS stands for Monitoring Agriculture Resources Unit

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Special issues are planned for crop monitoring in countries outside EU27

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