

# Drought impact assessment: NRN reporting system and How to organize national training

**Training for NRN focal points**  
by CzechGlobe



# Drought impact assessment:

- NRN reporting system

**NRN training part 1**



# Outline

- Questionnaire
- Administration and how to reach your data
- Map creation process
- Drought impacts database

# How to get your results? - Questionnaire page



## DriDanube - Drought Risk In The Danube Region

The main objective of [DriDanube project](#) is to increase the capacity of the Danube region to manage drought related risks. Your contribution to the project bring the information about drought impacts currently in real time from your locality. Thank you for your cooperation.

### How it works

1

#### Register

The automatical registration will be created with the first filling in a questionnaire. Please, use your email adress to login to the system thereafter.

2

#### Fill in questionnaire

Please, make sure you complete your questionnaire carefully according to field of your activity at the location of your business conducting. Instructions for questionnaire completing are attached [HERE](#).

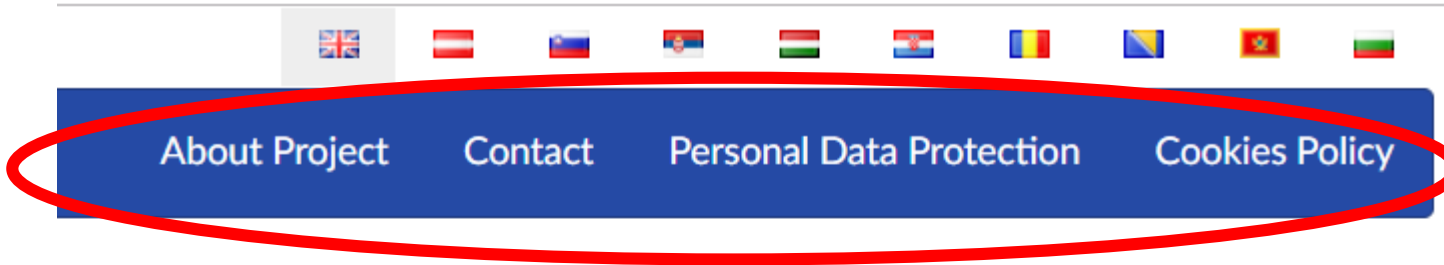
3

#### Continue in work

Please, keep reporting every week. Reporting continuity is core for entire cooperation. If you need an assistance, do not hesitate to contact us.

- Already done, and hopefully OK
- If you still have some issues with questionnaire page, please let me know

# Questionnaire page – contact information



## Risk In The Danube on

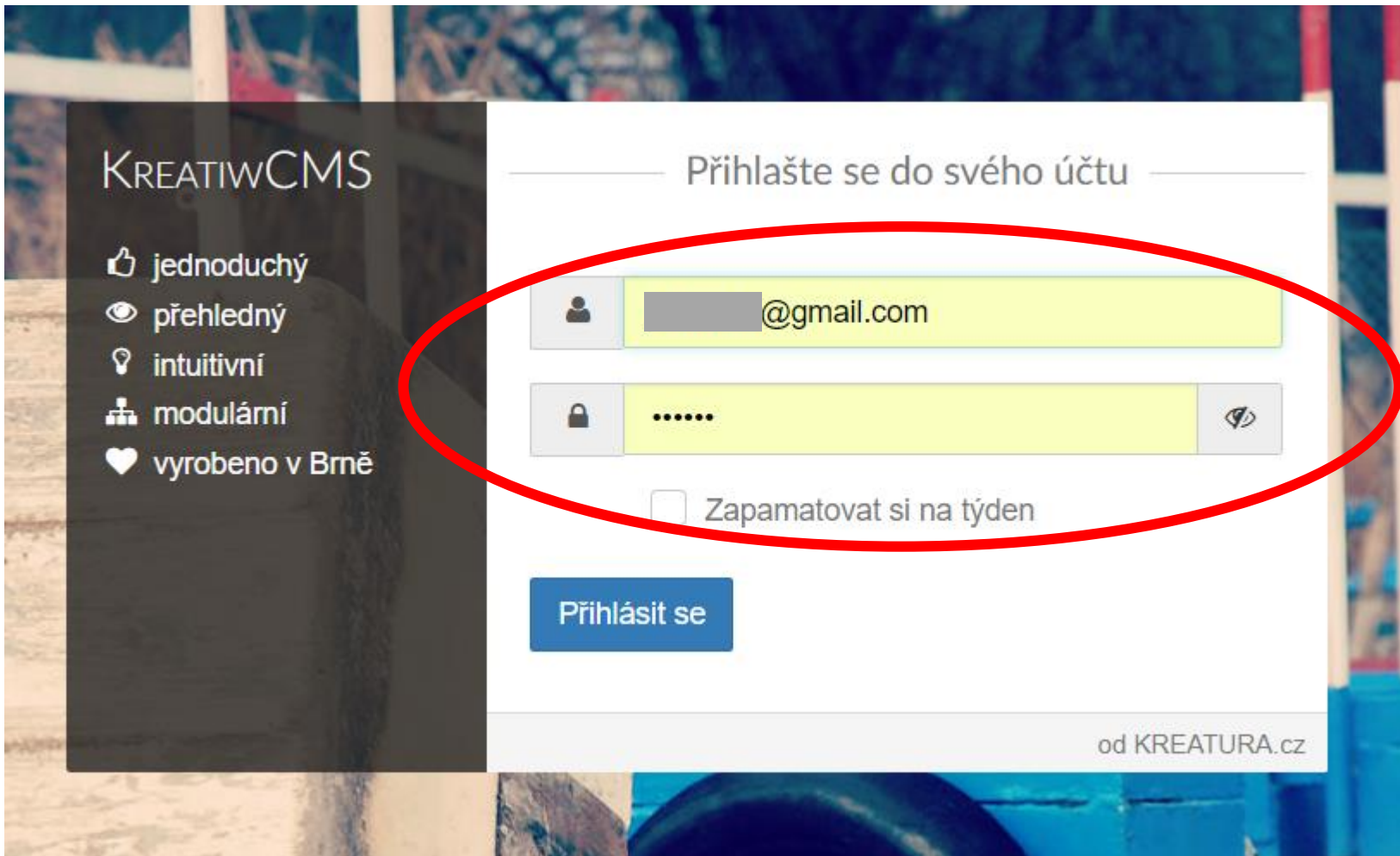
ct is to increase the capacity of the  
ated risks. Your contribution to the  
ought impacts currently in real time

- Please check if you have your contact information and information about project online
- It is first place for reporter to look for any information

# Questionnaire administration

- Administration available here:  
<http://questionnaire.intersucho.cz/admin/core/sign/in/>
- To log in, we need to create an administration account(s) for you
- Contact us to create it for you: [centrum@czechglobe.cz](mailto:centrum@czechglobe.cz)
- It is OK to have more accounts for one country if you need it

# Questionnaire administration



KREATIW CMS

- 👍 jednoduchý
- 👁️ přehledný
- 💡 intuitivní
- 🏗️ modulární
- ❤️ vyrobeno v Brně

Přihlašte se do svého účtu


Zapamatovat si na týden


Přihlásit se


od KREATURA.cz

- **Email of your choice + password we generate for you**

# Questionnaire administration = your data

 DriDanube

 Show website

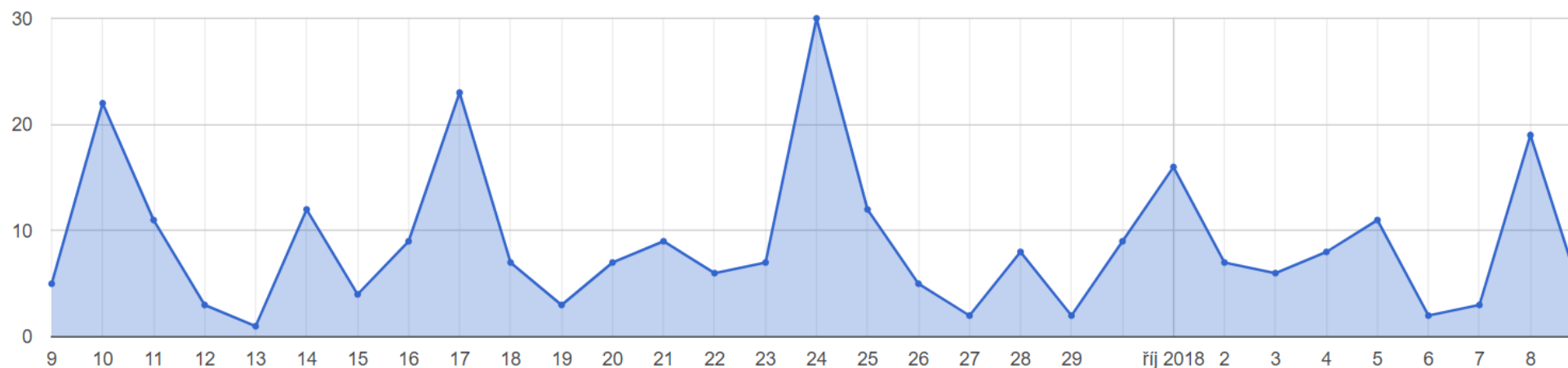
 CzechGlobeEditor Test ▾

KreativCMS > Overview



**Answers, results, reporters**

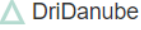
Distribution by visits




© KREATURA.cz



















# Questionnaire administration - Answers

 DriDanube Show website CzechGlobeEditor Test

KreativCMS > Overview of answers

**Answers** Overview of answers week 41 (8.10.2018 - 14.10.2018) 

User	Country	Region	Specification	Date	
	 Hrvatska	HR047 Bjelovarsko-bilogorska županija	Agriculture	10.10.2018 13:40 Wednesday	 
	 Hrvatska	HR037 Dubrovačko-neretvanska županija	Fruits, viticulture and olives	10.10.2018 11:55 Wednesday	 
	 Hrvatska	HR04A Brodsko-posavska županija	Agriculture	10.10.2018 10:44 Wednesday	 
	 Hrvatska	HR042 Zagrebačka županija	Fruits, viticulture and olives	10.10.2018 9:40 Wednesday	 

- Information about every sent report (every active reporter) in given week

# Questionnaire administration – Answer detail

KreatiwCMS > Overview of answers > Detail of answer

## Detail of answer

Active  Back

<b>Name</b>	[REDACTED]	
<b>Country</b>	Hrvatska	
<b>Region</b>	Bjelovarsko-bilogorska županija	
<b>Specification</b>	Agriculture	
<b>Date</b>	10.10.2018 13:40	
1	Assessment by Finger-print: what is the state of soil moisture in the layer 20 cm from the surface?	3
2	How do you evaluate last 3 months according to water balance?	-1
3	How do you evaluate last week in comparison with previous week according to water balance?	-1
4	Does our drought intensity estimation from this map correspond with reality in your area of interest?	n/a
5	Estimate drought impacts on winter cereals for the yield of 2018	2
6	Estimate drought impacts on winter rape for the yield of 2018	2
7	Estimate drought impacts on spring cereals for the yield of 2018	2
8	Estimate drought impacts on sugar beet for the yield of 2018	2
9	Estimate drought impacts on potatoes for the yield of 2018	2
10	Estimate drought impacts on maize for the yield 2018	0
11	Estimate drought impacts on permanent grasslands for the yield 2018	2
12	If you have irrigation systems installed, were they in use this season?	0
13	If you have irrigation installed and it was in use this season, what was the water consumption?	0
14	If you would have irrigation installed, would you have used them in previous week?	3

# Questionnaire administration – Results - Indicators

- Information from all 3 types of questionnaire, summarized by region

KreatiwCMS > Overview of questionnaires results - indicators

Overview of questionnaires results - indicators

week 41 (8.10.2018 - 14.10.2018)

Agriculture  
 Forestry  
 Fruits, viticulture and olives

**Agriculture**

Country	Region	Answers	Question 1	Question 2	Questions 5-11	Questions 5-7	Questions 8-9
Hrvatska	HR031 Primorsko-goranska županija	1	3.0	0.0	1.0	n/a	1.0
Hrvatska	HR032 Ličko-senjska županija	2	3.0	-0.5	2.0	1.5	1.5

**Forestry**

Country	Region	Answers	Question 1	Question 2	Questions 5-10	Questions 5-6	Questions 7-8	Questions 9-10
Hrvatska	HR031 Primorsko-goranska županija	1	4.0	2.0	0.0	0.0	0.0	
Hrvatska	HR043 Krapinsko-zagorska županija	1	3.0	0.0	1.0	1.0	1.0	
Hrvatska	HR044 Varaždinska županija	1	2.0	-1.0	4.0	3.0	4.0	

**Fruits, viticulture and olives**



Country	Region	Answers	Question 1	Question 2	Questions 5-11	Questions 5-8	Question 9	Question 10	Question 11
Hrvatska	HR033 Zadarska županija	2	3.0	0.5	1.5	1.5	1.5	n/a	1.0
Hrvatska	HR035 Splitsko-dalmatinska županija	1	4.0	1.0	2.0	2.0	1.0	1.0	0.0

# Questionnaire administration – Results - Combined

△ DriDanube Show website CzechGlobeEditor Test


KreativCMS > Overview of questionnaires results - combined indicators

Overview of questionnaires results - combined indicators week 41 (8.10.2018 - 14.10.2018)

Country	Region	Answers	Questions 5-11	Specifications	Agriculture 5-11   5-7   8-9   10   11	Forestry 5-11   5-6   7-8   9-10	Fruits, viticulture and olives 5-11   5-8   9   10   11
 Hrvatska	HR037 Dubrovačko-neretvanska županija	3	■ 3.7	Fruits, viticulture and olives			■ 3.7 ■ 3.0 □ 1.7 ■ n/a ■ 3.7
 Hrvatska	HR031 Primorsko-goranska županija	2	□ 1.0	Agriculture	□ 1.0 ■ n/a □ 1.0 □ 1.0 □ 0.0	□ 0.0 □ 0.0 □ 0.0 □ 0.0	





- Summarized information, base for map – what you find here defines how the map looks in each week

# Questionnaire administration – Results - Localities

 DriDanube Show website CzechGlobeEditor Test

KreatiwCMS > Overview of questionnaires results - localities

Overview of questionnaires results - localities week 41 (8.10.2018 - 14.10.2018)

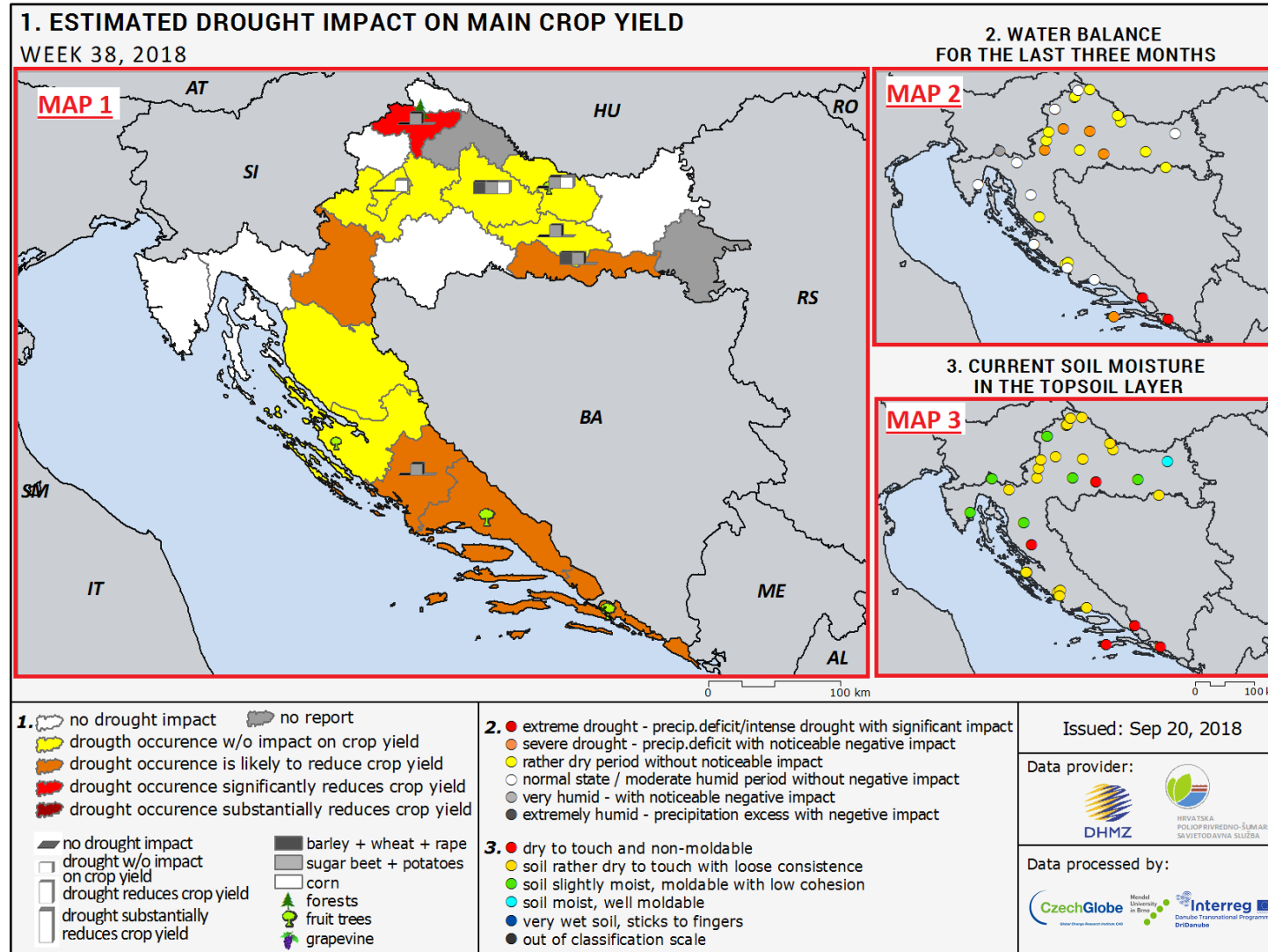
Country	Region	Coordinates	Specification	Question 1	Question 2	Reporter
 Hrvatska	HR048 Virovitičko-podravaska županija	45.952572,17.239811	Fruits, viticulture and olives	2	-1	
 Hrvatska	HR043 Krapinsko-zagorska županija	46.138746,15.888072	Agriculture	4	0	

- Information about current state of drought and soil saturation from each reporter (her/his location)
- Answers for questions 1 and 2 in the online questionnaire

- When you are ready (you have enough reporters) you send us your results (depends on you, but you have to contact us)
- We need 5 tables total (for each week, delivered on our FTP):
  - 3 tables downloaded from ‚Results – indicators‘ (for 3 types of questionnaire, „validation“ data)
  - 1 table from ‚Results – combined‘
  - 1 table from ‚Results – localities‘

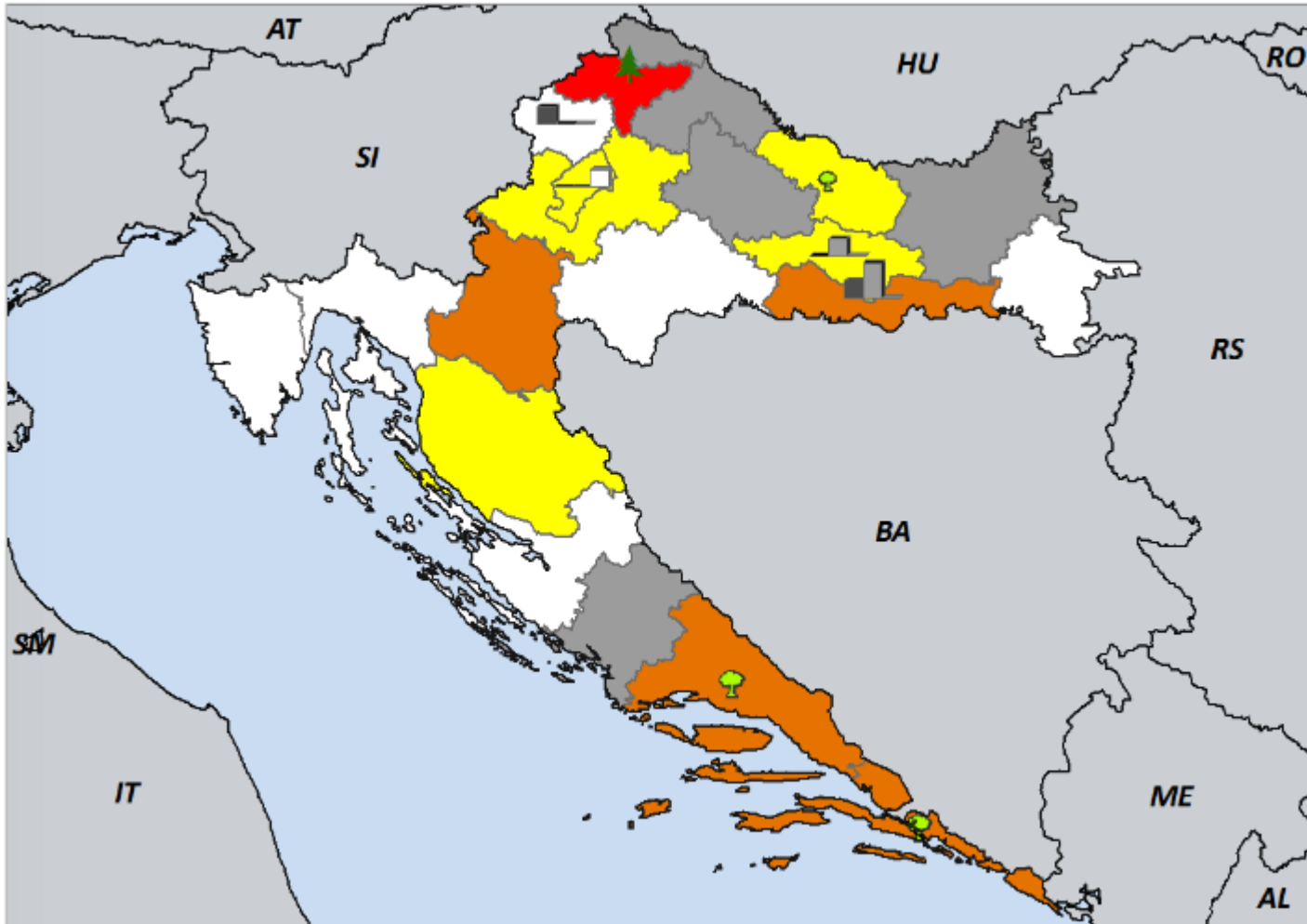
# How is the map created?

**MAP 1 =  
Results -  
combined**



**MAPS 2 & 3  
= Results -  
localities**

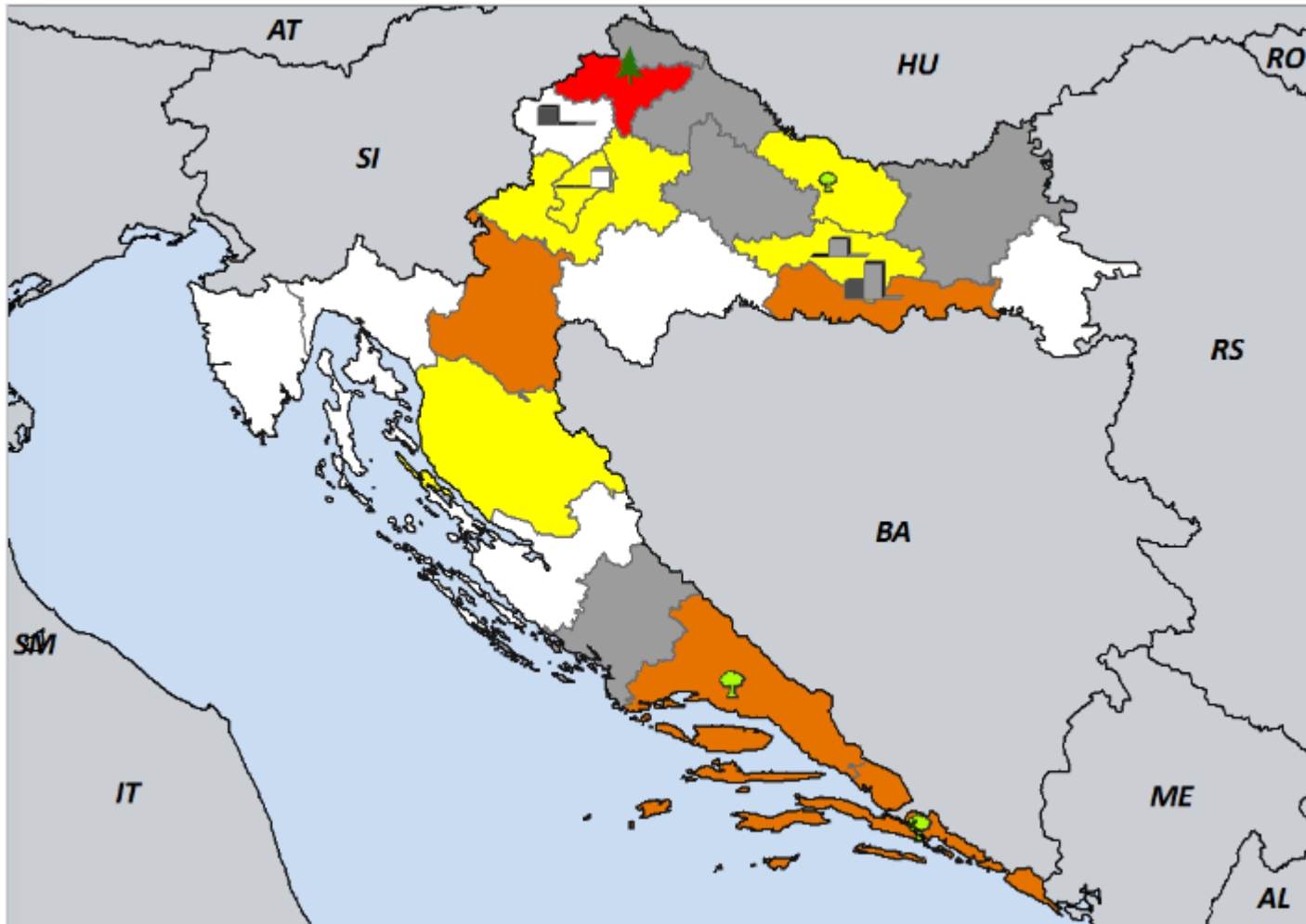
# Map 1



- Based on ,Results – combined‘
- 3 types of information – color of the region, bar charts and pine/fruit tree icons

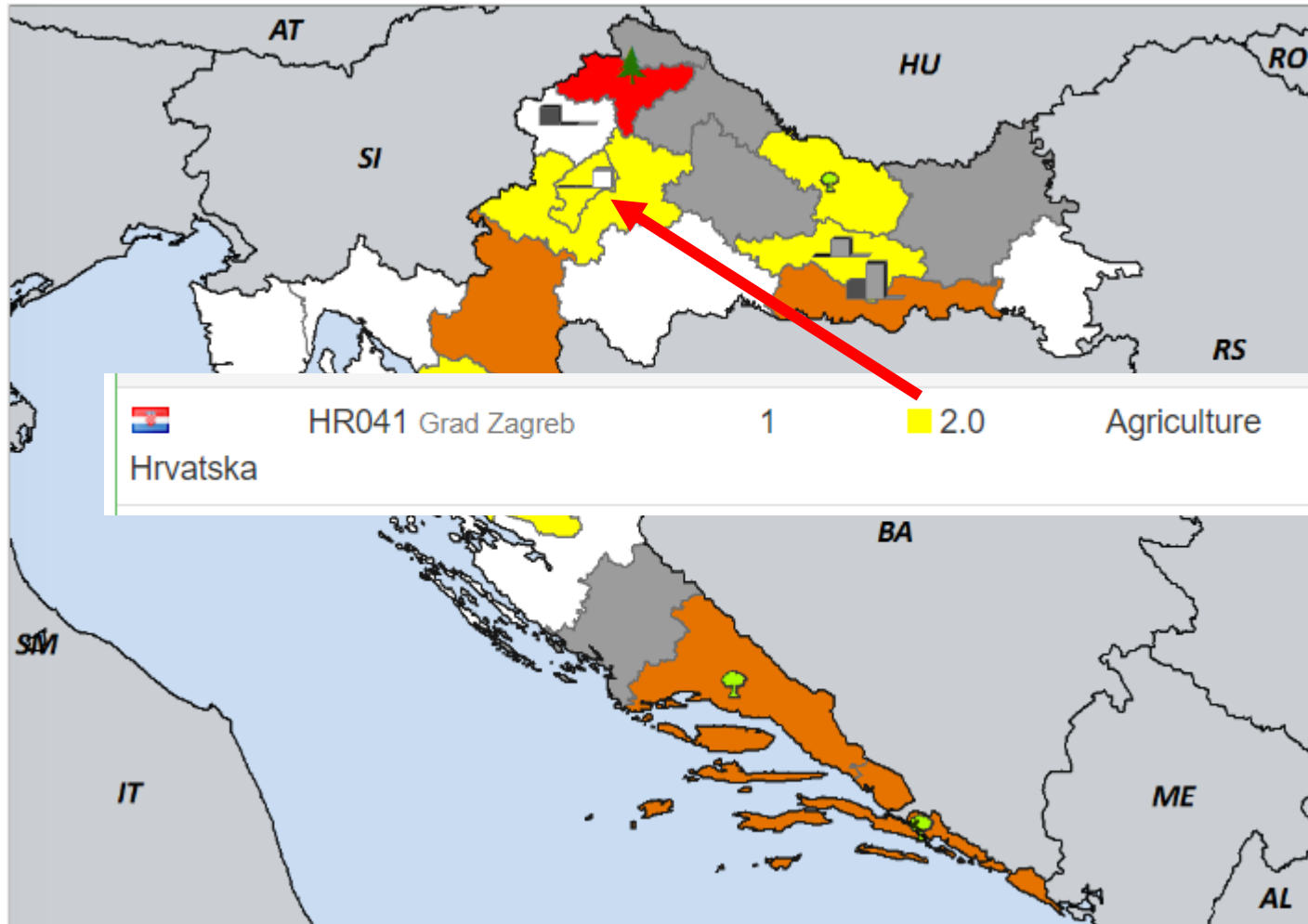


# Map 1



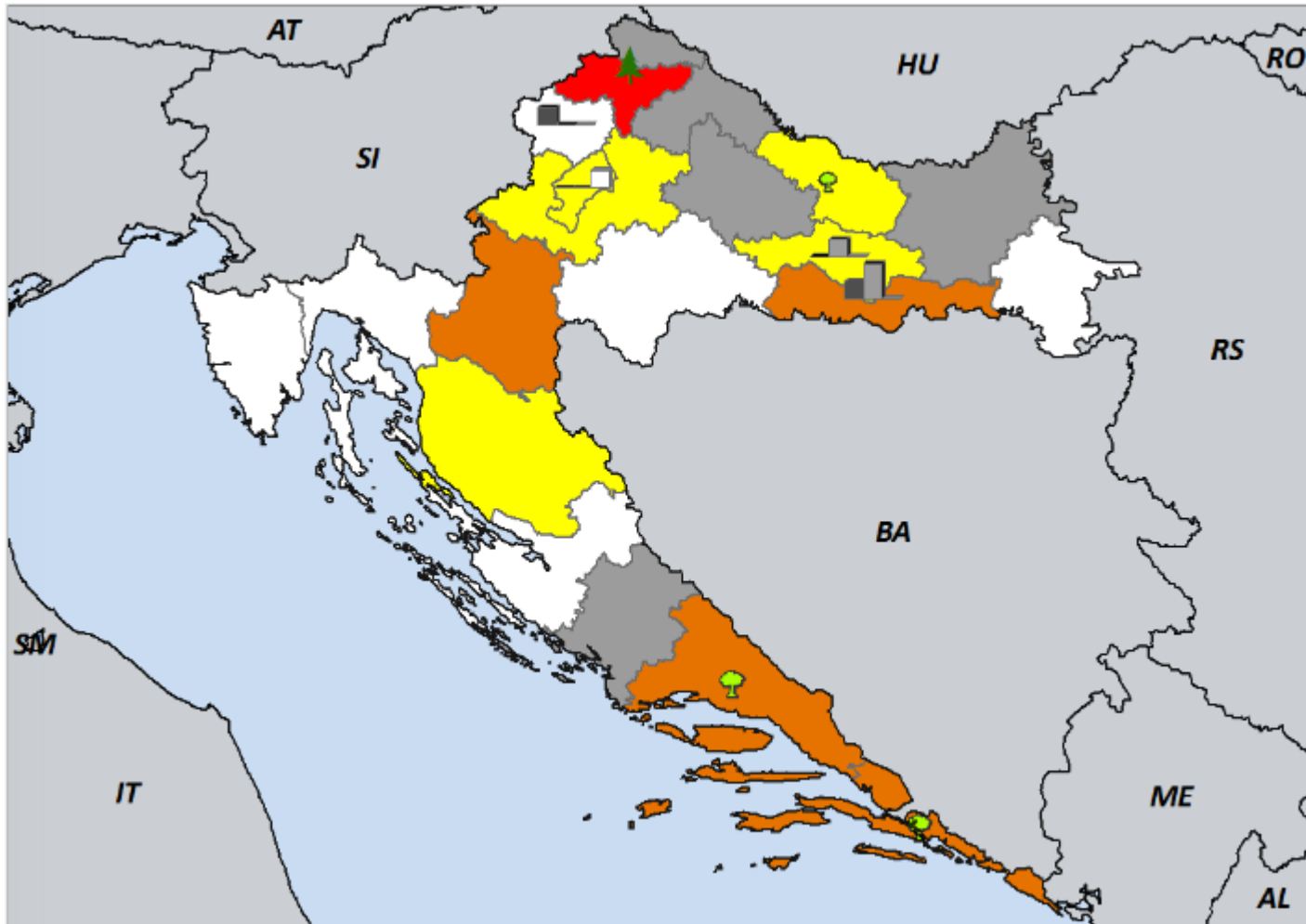
- Color of the region – we take every report from region, and select worst reported value (highest number) from questions 4 to 10 in the agriculture questionnaire. From those ,worst reported values‘ we make an average

# Map 1



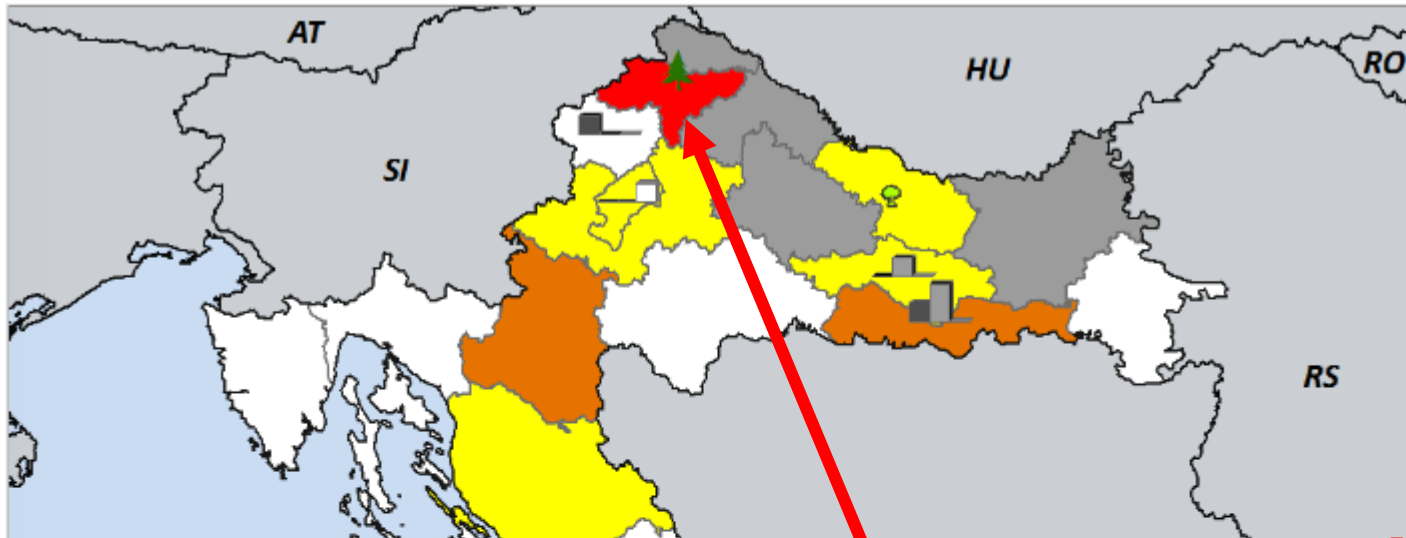
- Color of the region – we take every report from region, and select worst reported value (highest number) from agriculture questionnaire. From those 'worst reported values' we make an average


# Map 1

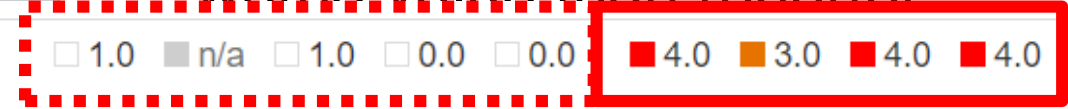


- Color of the region – base information is defined by agriculture. If reporter from forestry or fruit field reports worse value than reporter from agriculture in the same region, we use this worse value to define color => We always show the worst impact

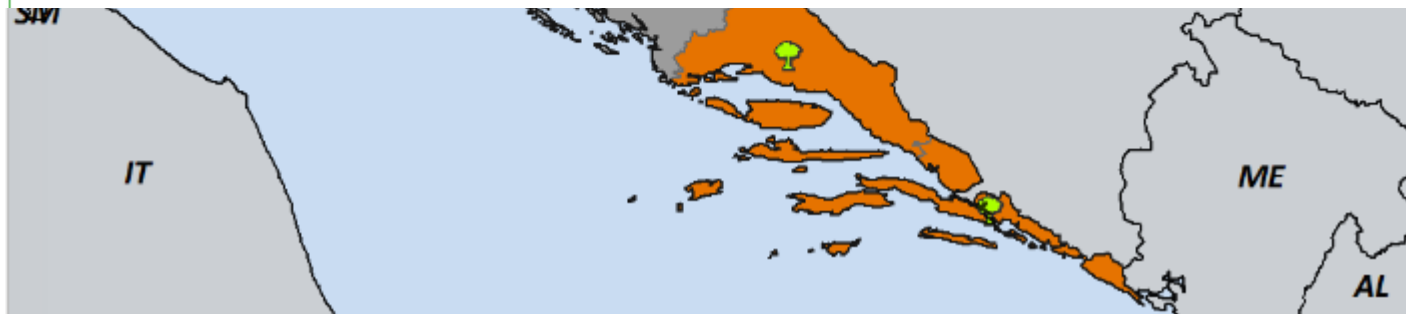
# Map 1



 HR044 Varaždinska županija 2  4.0 Forestry  
Hrvatska

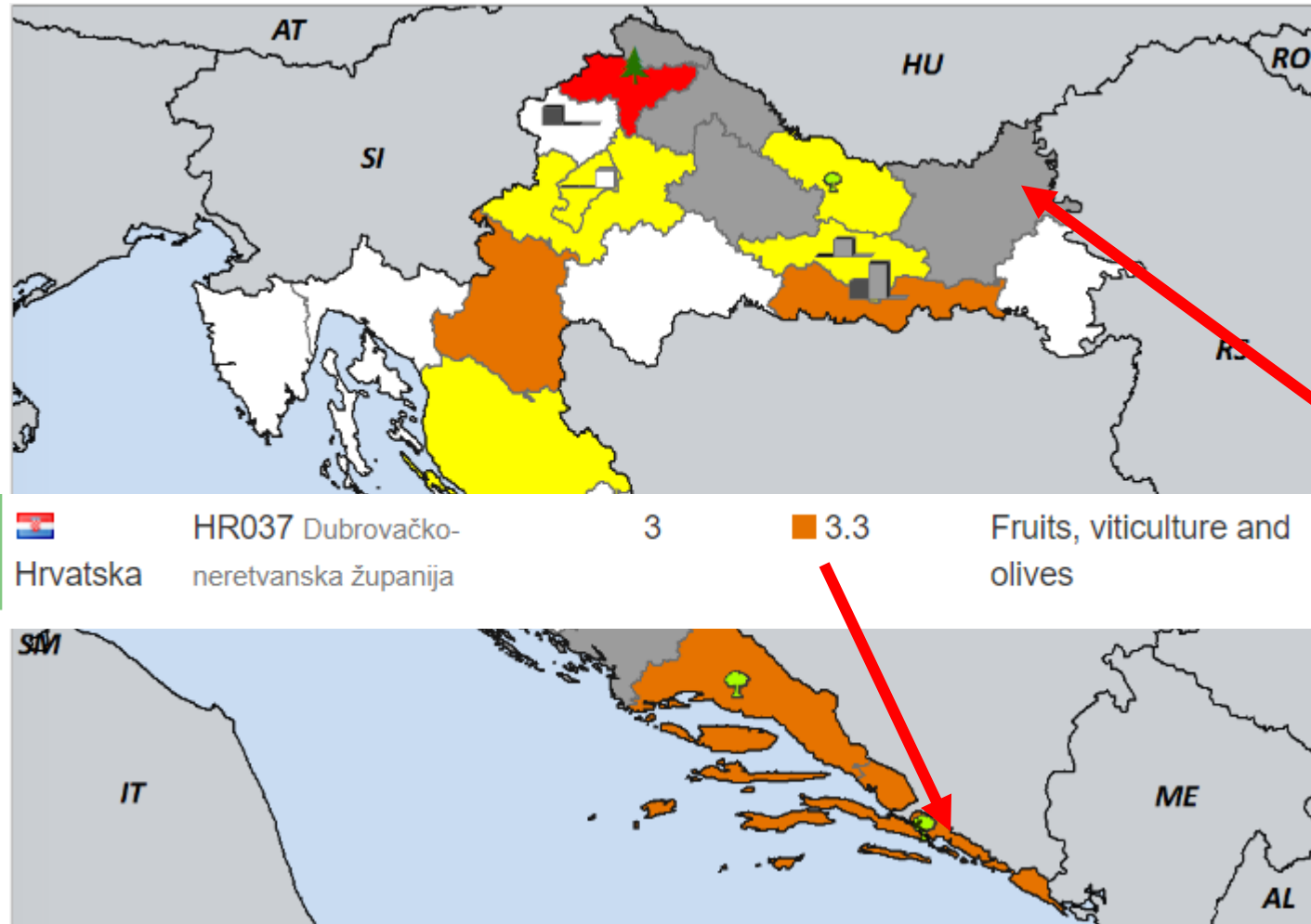


- Color of the region – base information is defined by agriculture. If reporter from forestry or fruit field reports worse value than reporter



region, we use this worse value to define color => We always show the worst impact

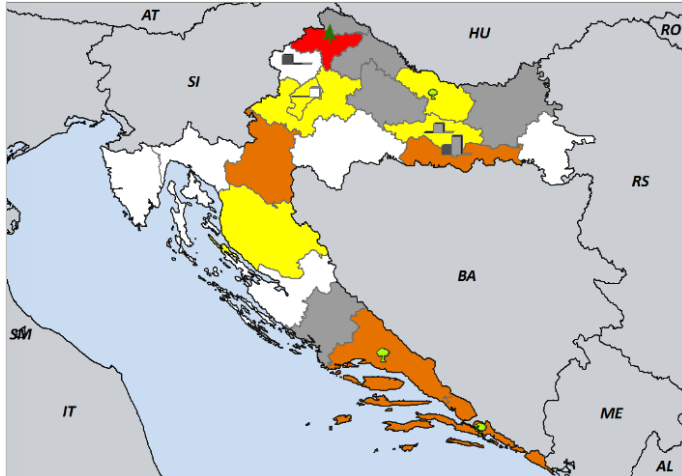
# Map 1









- Color of the region – if information from agriculture is missing, we use forestry or fruits directly
- If there is no report, or all answers are 'Cannot be evaluated' region remains grey

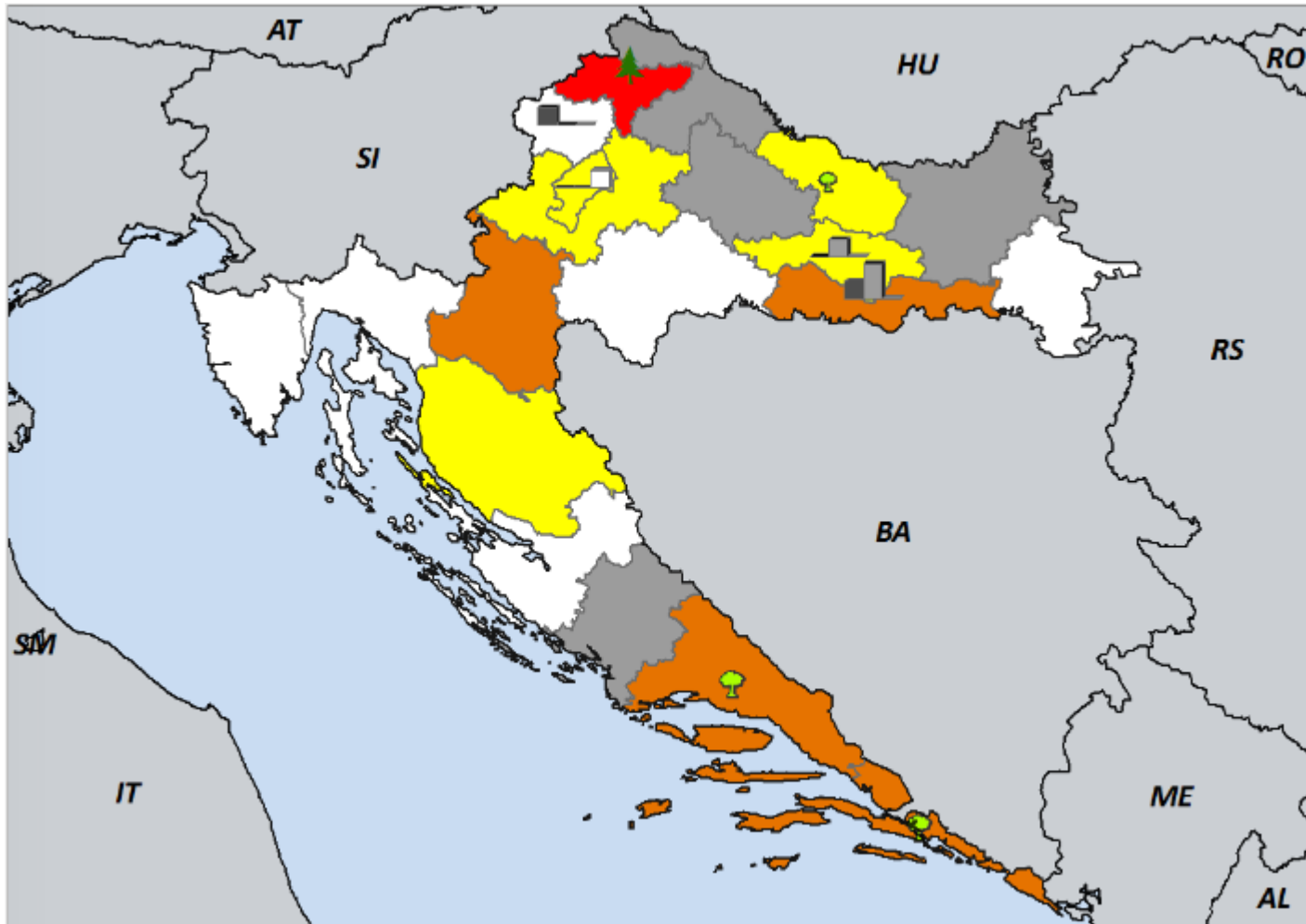
# Map 1 – answers, values, colors

- No effect of drought; vegetation is optimal. **0**
- No effect of drought but vegetation is worse for other reasons. **1**
- Drought affected the development of vegetation but considerable losses aren't expected, yield loss will be to 10% \* **2**
- The middle level of damage, a considerable decrease of yield is expected, yield loss will be to 10-30% \* **3**
- Hard damage of vegetation, the yield on 10-year minimum, yield loss will be to 30-40% \* **4**
- Vegetation extremely damaged by drought, yield loss bigger than 40% \* **5**
- CANNOT BE EVALUATED **n/a**



Value	Color
0 - 1,8	
1,81 - 2,49	
2,5 - 3,4	
3,41 - 4	
4,01 - 5	
No data	

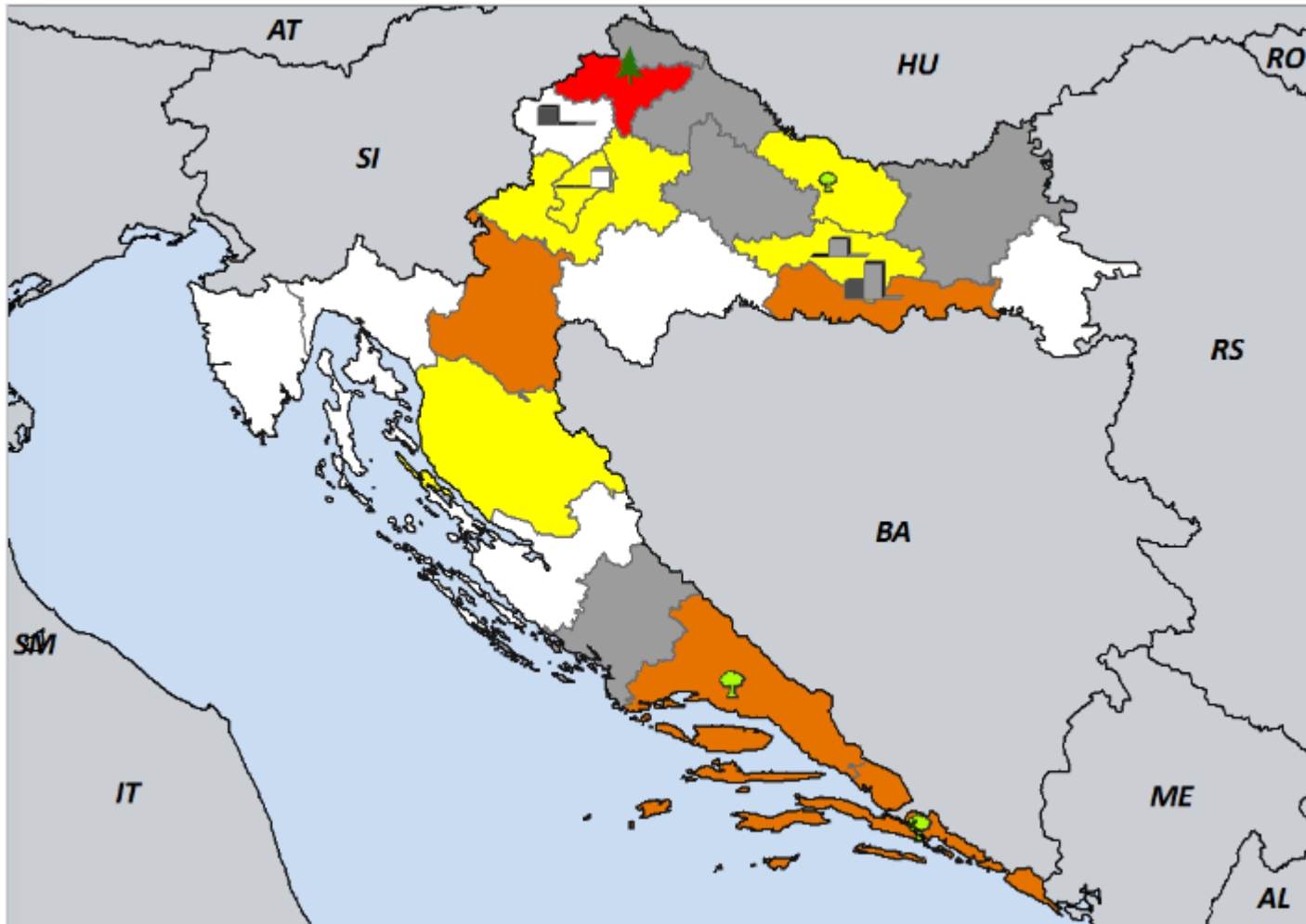
# Map 1 – bar charts



- **Bar charts** – show drought impact on 3 groups of crops – cereals, root crops, and corn.
- Values are calculated in the same way, as for the color of the region. We take an average of worst reported values from each category.



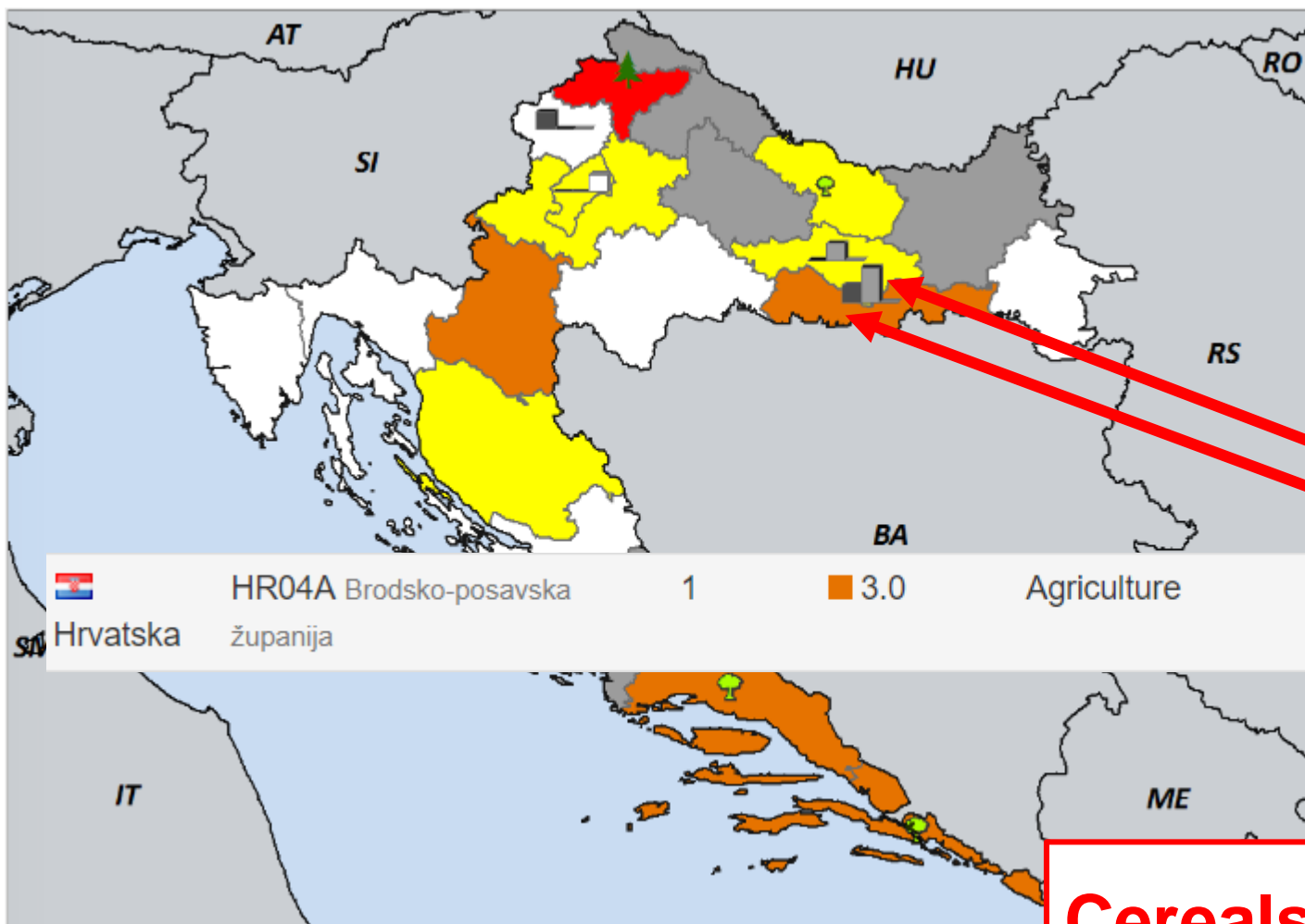
# Map 1 – bar charts



- Bar charts – For cereals, results are combined from questions 4 – 6 , root crops from questions 7 – 8 and corn from question 9
- Bar is drawn, only if result value is 2 or higher (drought impact on the crop).
- Values 0 and 1 = no drought impact



# Map 1 – bar charts



- Bar charts – For cereals, results are combined from questions 4 – 6 , root crops from questions 7 – 8 and corn from question 9

- Bar is drawn, only if result value (light impact on the crop).

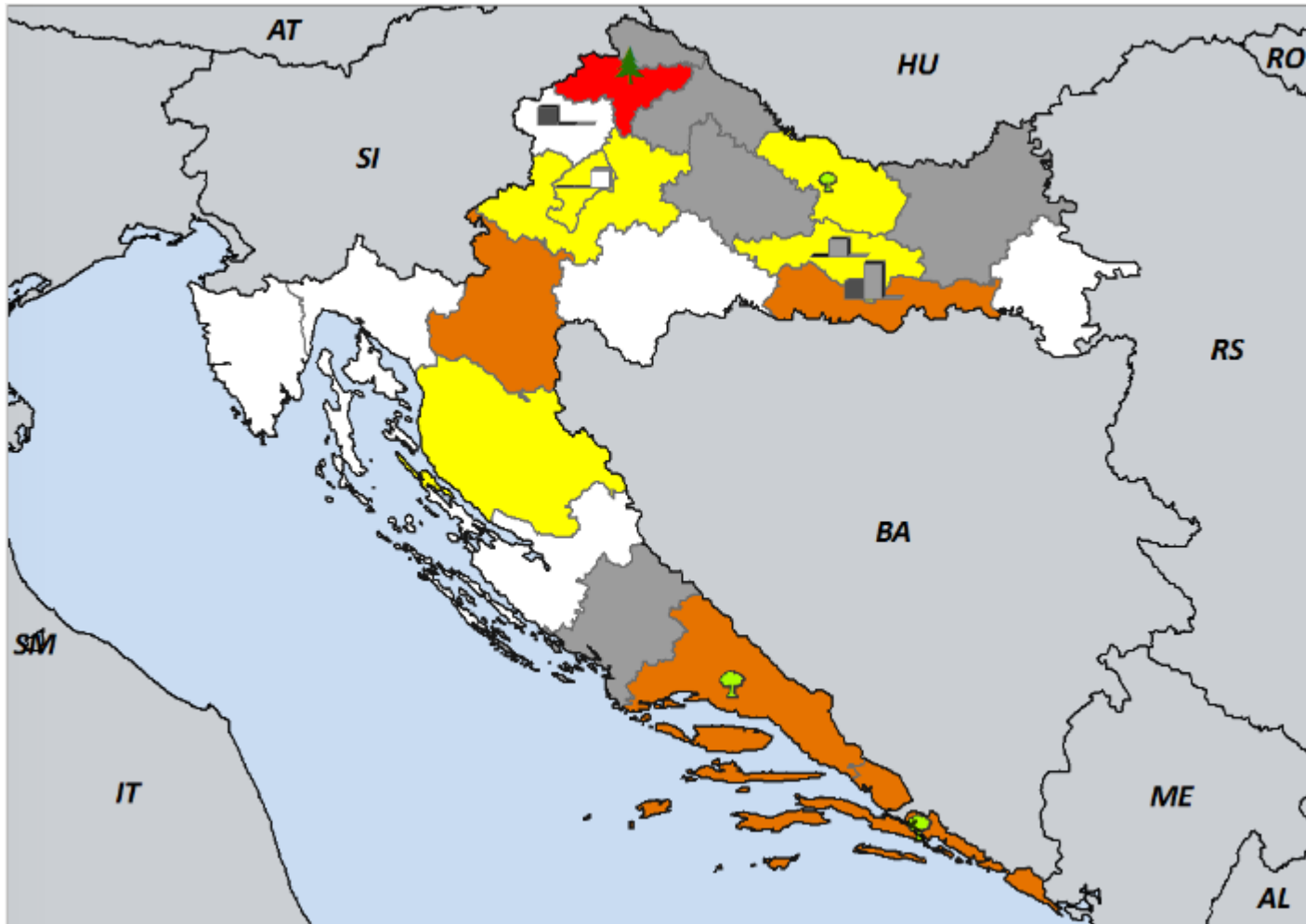
- Values 0 and 1 = no drought

**Cereals**

**Root crops**

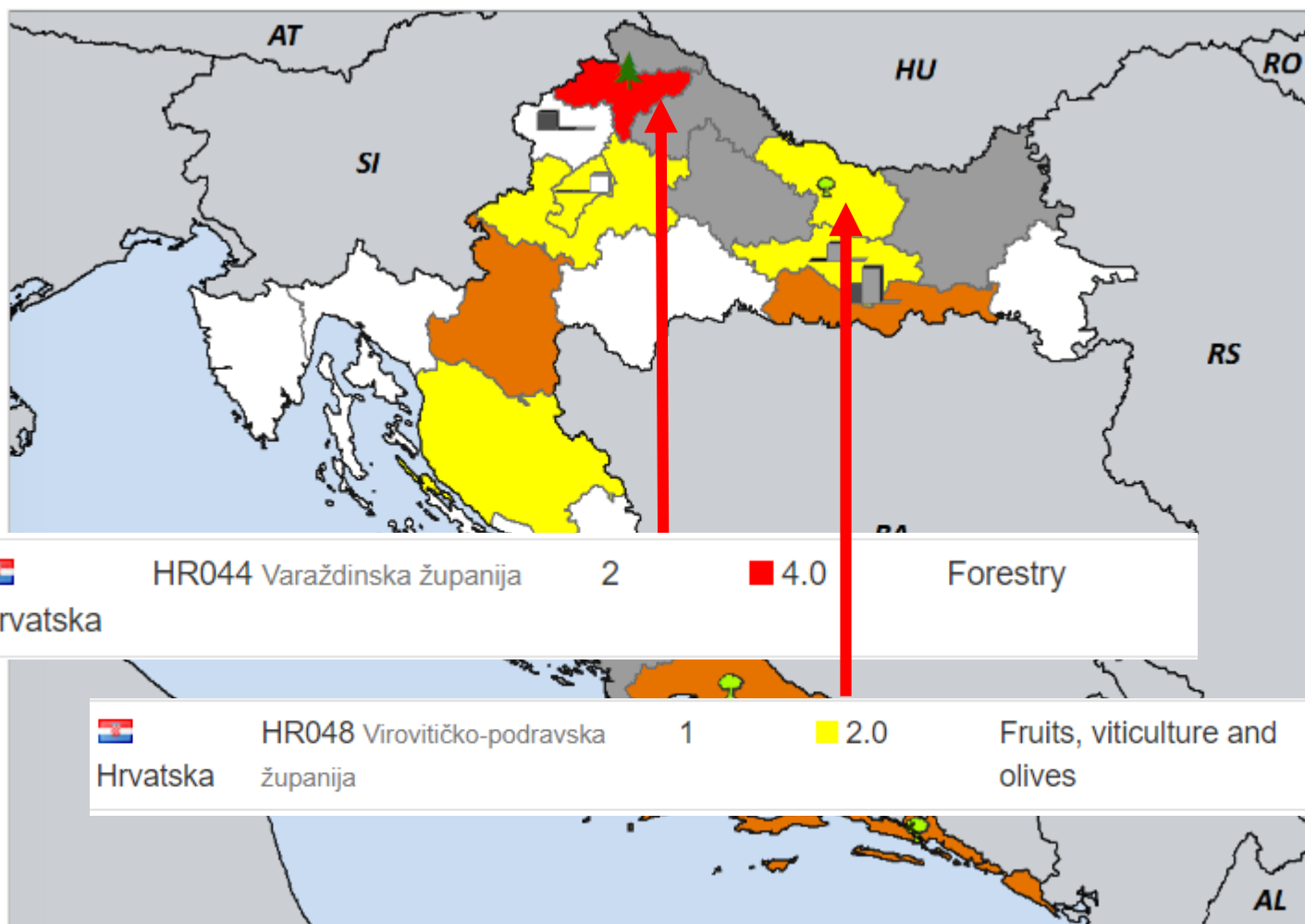
**Corn**

# Map 1 – fruit/pine trees



- Fruit/pine tree icons – should be present in regions, with any report from forestry or fruit field
- The bigger icon the worse impact (higher value)

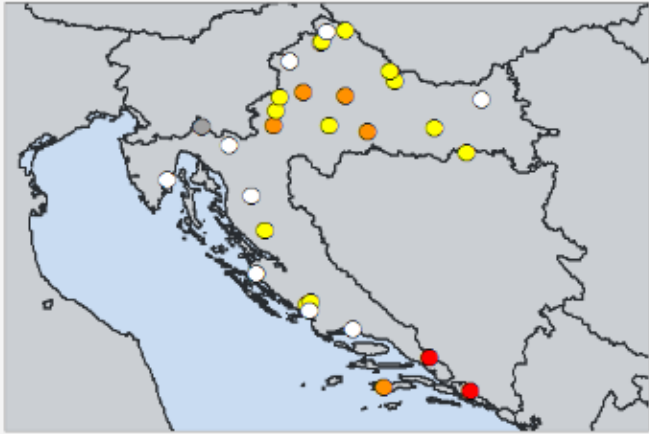
# Map 1 – fruit/pine trees



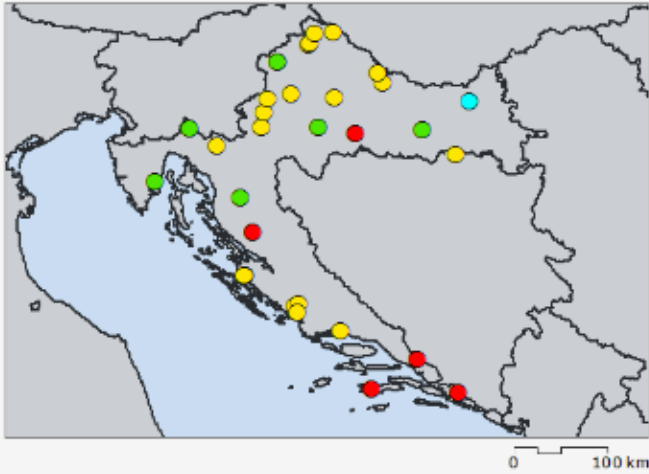
- Fruit/pine tree icons – should be present in regions, with any report from forestry or fruit field
- The bigger icon the worse impact (higher value)

# Maps 2 & 3

2. WATER BALANCE  
FOR THE LAST THREE MONTHS



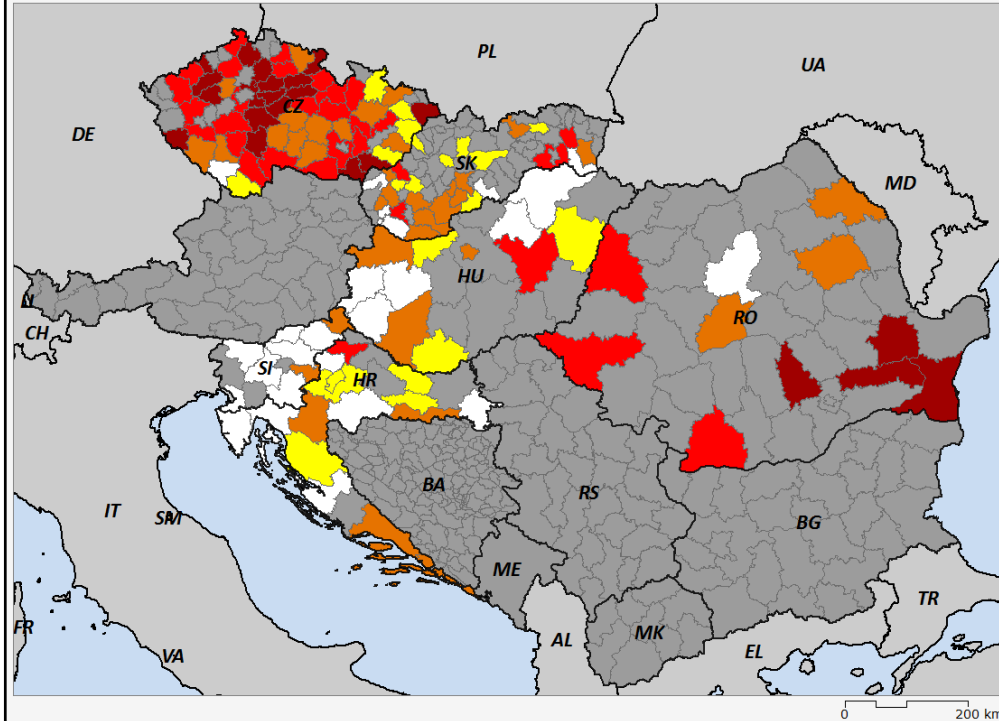
3. CURRENT SOIL MOISTURE  
IN THE TOPSOIL LAYER



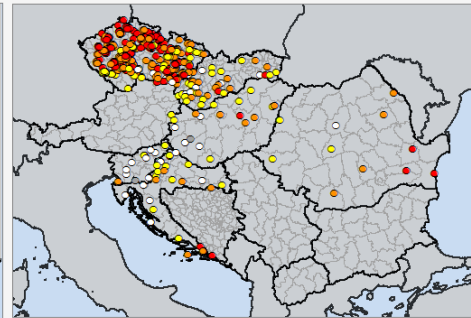
- Based on ‚Results – localities‘
- Map 2: Answers for question 2: *How do you evaluate last 3 months according to water balance?*
- Map 3: Answers for question 1: *Assessment by Finger-print: what is the state of soil moisture in the layer 20 cm from the surface?*
- Answers for all types of questionnaires

# Regional map

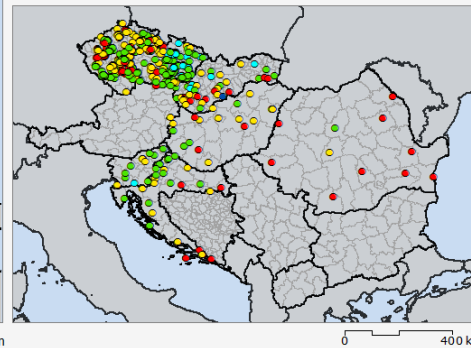
**1. ESTIMATED DROUGHT IMPACT ON MAIN CROP YIELD**  
WEEK 40, 2018



**2. WATER BALANCE**  
FOR THE LAST THREE MONTHS



**3. CURRENT SOIL MOISTURE**  
IN THE TOPSOIL LAYER



- |   |   |  |
|---|---|--|
| <p><b>1.</b>  no drought impact     no report</p> <p> drought occurrence w/o impact on crop yield</p> <p> drought occurrence is likely to reduce crop yield</p> <p> drought occurrence significantly reduces crop yield</p> <p> drought occurrence substantially reduces crop yield</p> | <p><b>2.</b>  extreme drought - precip.deficit/intense drought with significant impact</p> <p> severe drought - precipitation deficit with noticeable negative impact</p> <p> rather dry period without noticeable impact</p> <p> normal state / moderate humid period without negative impact</p> <p> very humid - with noticeable negative impact</p> <p> extremely humid - precipitation excess with negative impact</p> | <p><b>3.</b>  dry to touch and non-moldable</p> <p> soil rather dry to touch with loose consistence</p> <p> soil slightly moist, moldable with low cohesion</p> <p> soil moist, well moldable</p> <p> very wet soil, sticks to fingers</p> <p> out of classification scale</p> |
|---|---|--|

Data provider:

Data processed by:

Issued: Oct 04, 2018








Project co-funded by European Union funds (ERDF, IPA, ENI)

- Same system of calculation
- No charts and icons to make map content more readable

# Maps 2 & 3 – answers, values, colors







## Values and colors coding for map 2:

2) How do you evaluate the last 3 months according to water balance?

- Extremely dry – precipitation deficit/intensive drought with significant impacts. -3 
- Very dry – precipitation deficit with detectable negative drought impacts. -2 
- The process is rather drier without visible impacts. -1 
- Normal state. 0 
- The process is rather moister, without negative manifestations. 1 
- Very moist – with detectable negative impacts. 2 
- Extremely moist – precipitation surplus with negative impacts. 3 

## Values and colors coding for map 3:

3) Assessment by Finger-print: what is the state of soil moisture in the layer 20 cm from the surface?

- The soil is dry and dusty by touch, without the possibility to make any form 1 
- The soil is drier by touch, it has a loose structure; without moisture impact 2 
- The soil is moderately moist, it's possible to make a form but low consistency, it gives the feeling of moisture in fingers 3 
- The soil is moist with good workability and possibility to make a finger-print 4 
- The soil is fully saturated by water, it sticks to fingers – it's muddy 5 
- CANNOT BE EVALUATED n/a (x) 



# Special map products to fit your needs

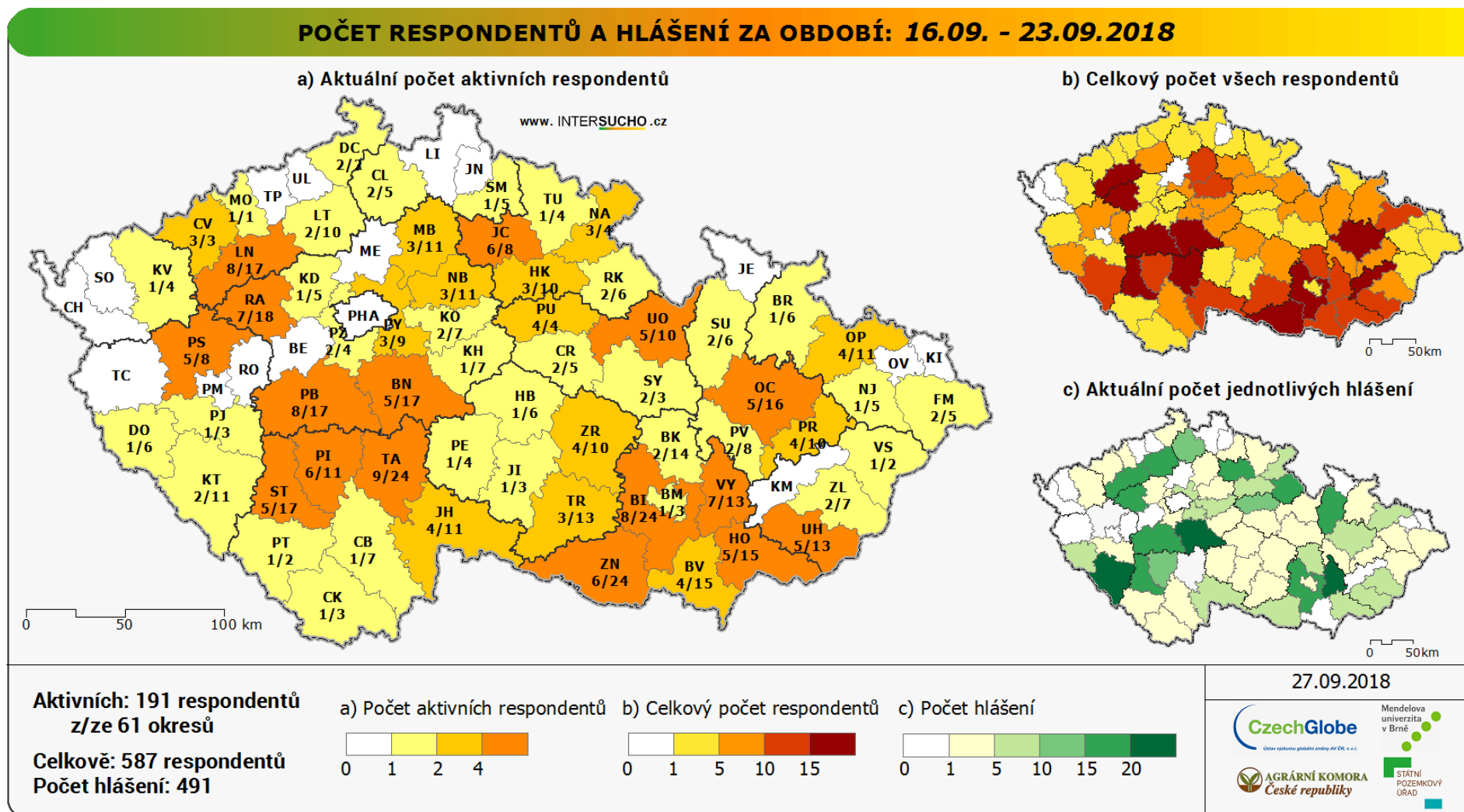
- We have to know what you need and find useful
- We are working just with our own experience and don't know your national needs
- If you need map of drought impact on apricots or olives we are able to create it
- Having maps describing situation on your national level may help you to spread your message

# Special map – Reporters count

- Probably the easiest map to create but really effective
- Great picture to show to your local authorities to describe your problems with reporting network – easy to understand
- You can identify problematic regions and think about what to do to



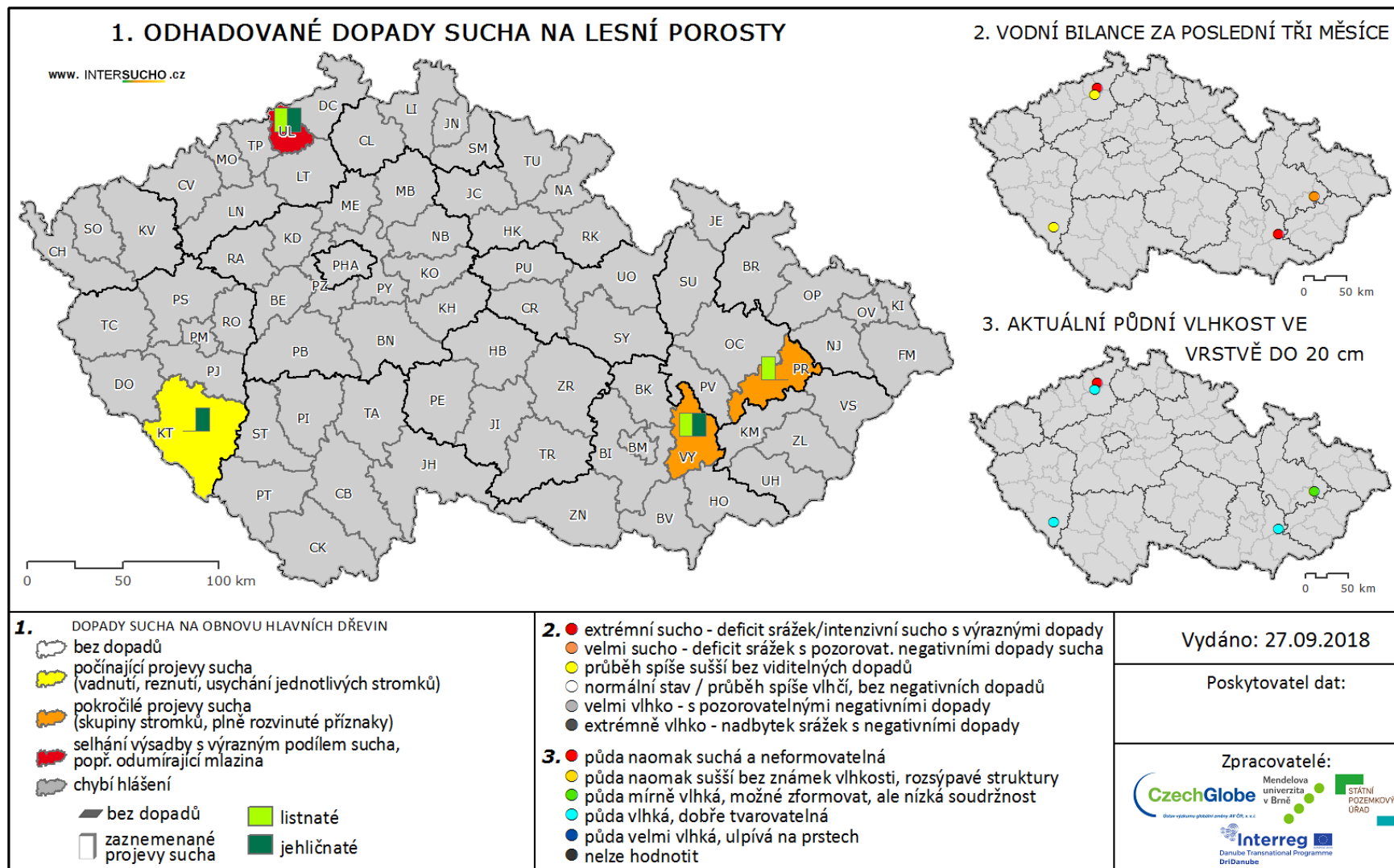
# Special map – reporters or reports counts



# Special map – Czech Republic forestry example

- Map of impacts on forests
- Forest and farm land have very different response to drought
- 95 % of our reporters are from agriculture field, but we already have few from forestry
- Thanks to feedback from those few reporters we opened this topic at national forestry chamber and created special product just for forestry
- This step is going to bring new reporters => more robust monitoring

# Special map – Czech Republic forestry example



# Reporting steps summary

- Choose somebody to take care of reporters on national level
- Let us know to create an administration account for your country
- Work on your network, and let us know if you have problems, maybe we solved the same things before
- Let us know you are ready to create maps
- Continue with monitoring and data delivery on weekly basis
- Tell us what you need exactly in your country

# About monitoring itself

- If it is possible have somebody (one person – it is time consuming) who is going to take care of reporters, take care of communication
- Try to continue with monitoring even out of the vegetation season
- Listen to your reporters – criticism, comments, ideas – everything has value
- Show reporters results of your work, keep them informed, stay in touch

# Drought impact assessment:

- How to organize national training

**NRN training part 2**



# Engagement of reporters – our experience

- Cooperation with Agriculture Union of the Czech Republic
- We had the results and operational website already
- Agriculture Union nominate observer for given districts
- Presentations and lectures at Agriculture Union meetings around the whole country

# Engagement of reporters – our advices

- Find partner/partners in your country who can help you to get in contact with reporters
- Find/create channel to share it with your reporters (dedicated website, send by mail, show it at any occasion)
- Personal meetings
- Listen to their comments/criticism/ideas
- Show your interest, and work together to create the most relevant output



# Engagement of reporters

YEAR 2014

**± 25  
REPORTERS**

YEAR 2015

**± 50  
REPORTERS**

↑  
Significant  
drought in  
summer 2015

YEAR 2016

**100 - 130  
REPORTERS**

Our system used  
as base for  
granting drought  
compensation



YEAR 2017

**± 130  
REPORTERS**

Our system used  
as base for  
granting drought  
compensation



YEAR 2018

**± 230  
REPORTERS**

↑  
Significant  
drought in  
spring and  
summer 2018

# You don't just collect questionnaires

- You have contact with your users (experts)
- You are able to get their point of view, their comments, pictures any time

=> Very powerful network to make contact with government and other organizations and to emphasize problem of drought

# National seminars

- Regional seminars/visits – usually initiated by reporters themselves (5 – 10 during season) – regions with specific problems, less reporters, great interest
- Day for reporters – **HIGHLY RECOMMENDED** - make an event for all reporters, tell them what is new and find out what needs to be changed
- It is always better to meet in person if it is possible 😊

- Important partner on national level
- If there is any ,trending‘ topic (Drought 😊) they will go for it
- Communication with anybody, spreading awareness, generates reporters and interest on its own

# Media

Poškození je v tu  
Podobný stav je ta

## Prof.Mgr.Ing. Miroslav

Prof. Ing. Mgr. Miroslav Trnka, Ph.D. (\*1976) je ab  
univ  
dop  
21. s



...naprosté většině o klimatické změně nepochybují.



 sdílet  odkaz na video  zhasnout  pomoc

# Experience on from other point of view

- Drought impact maps operational for whole season

# Thanks for attention!