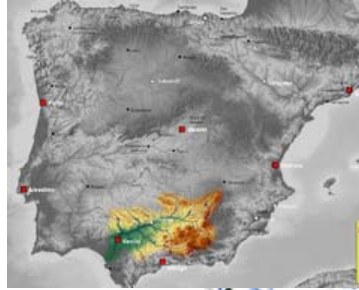


The perception of water markets by European farmers: results of surveys and focus groups in Spain

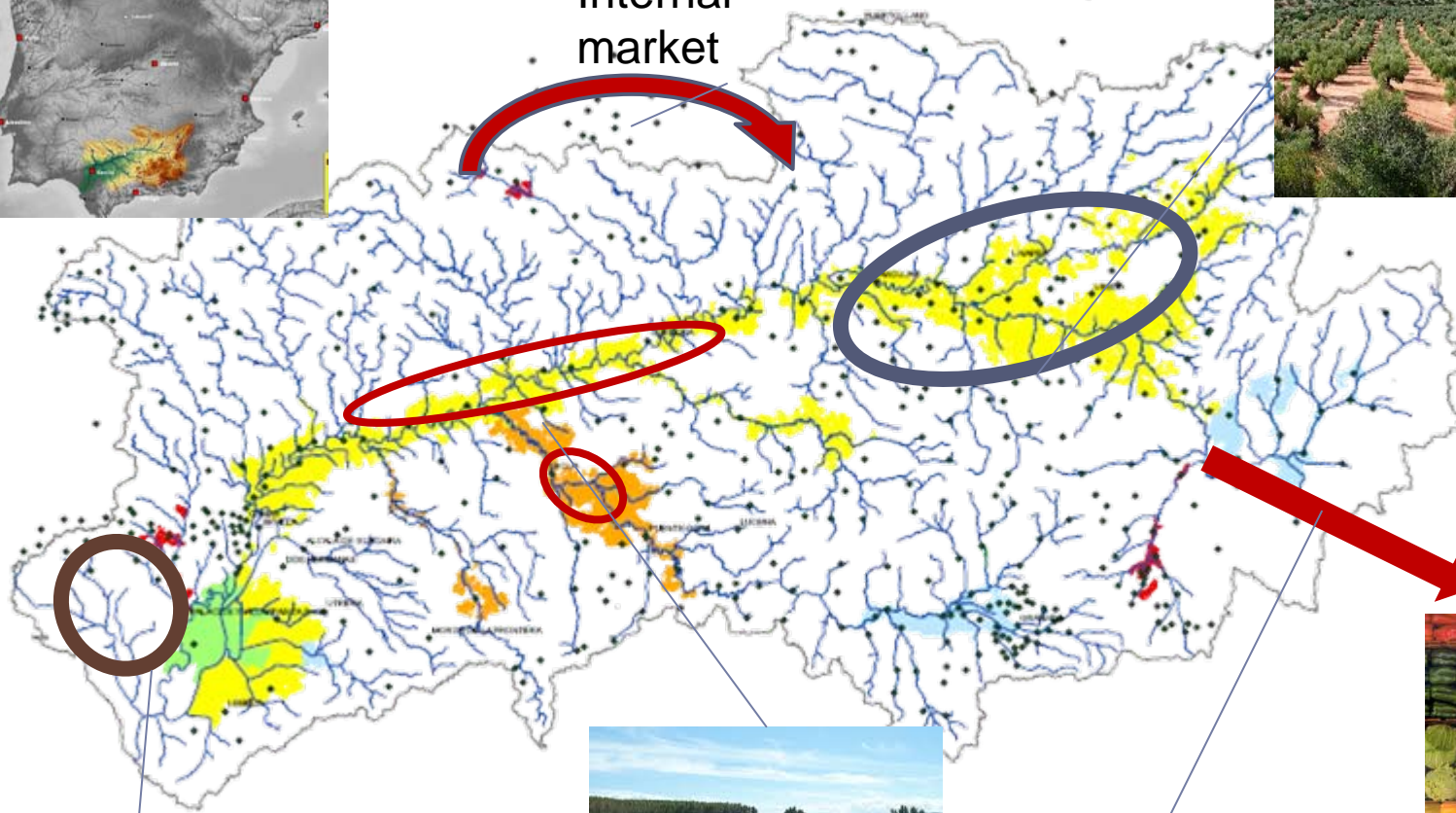
J. Berbel, Giannoccaro, G. & M. Castillo (**University of Cordoba**).
European workshop Paris, 11 Feb. 2014
Water markets: A response to water scarcity and drought in Europe

Market operation 2005-2008

Agents



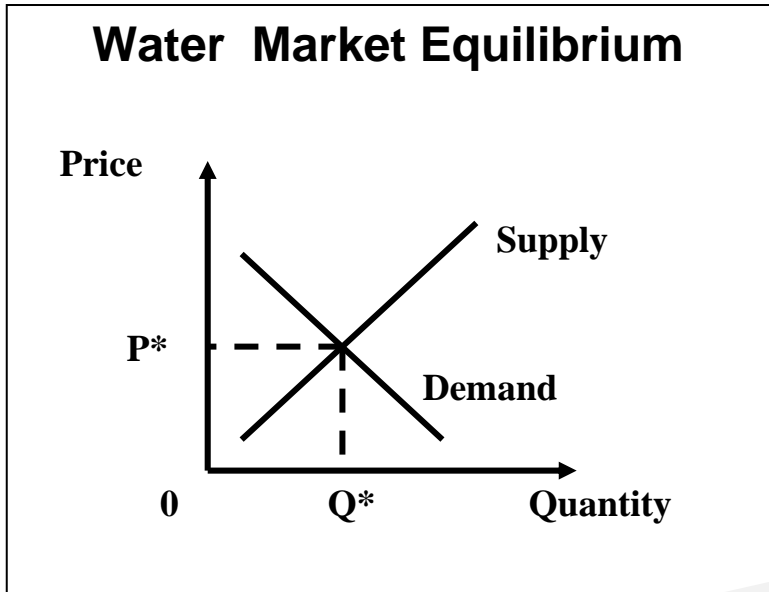
Internal market



Interbasin transfer
Almeria



Analysis of model results

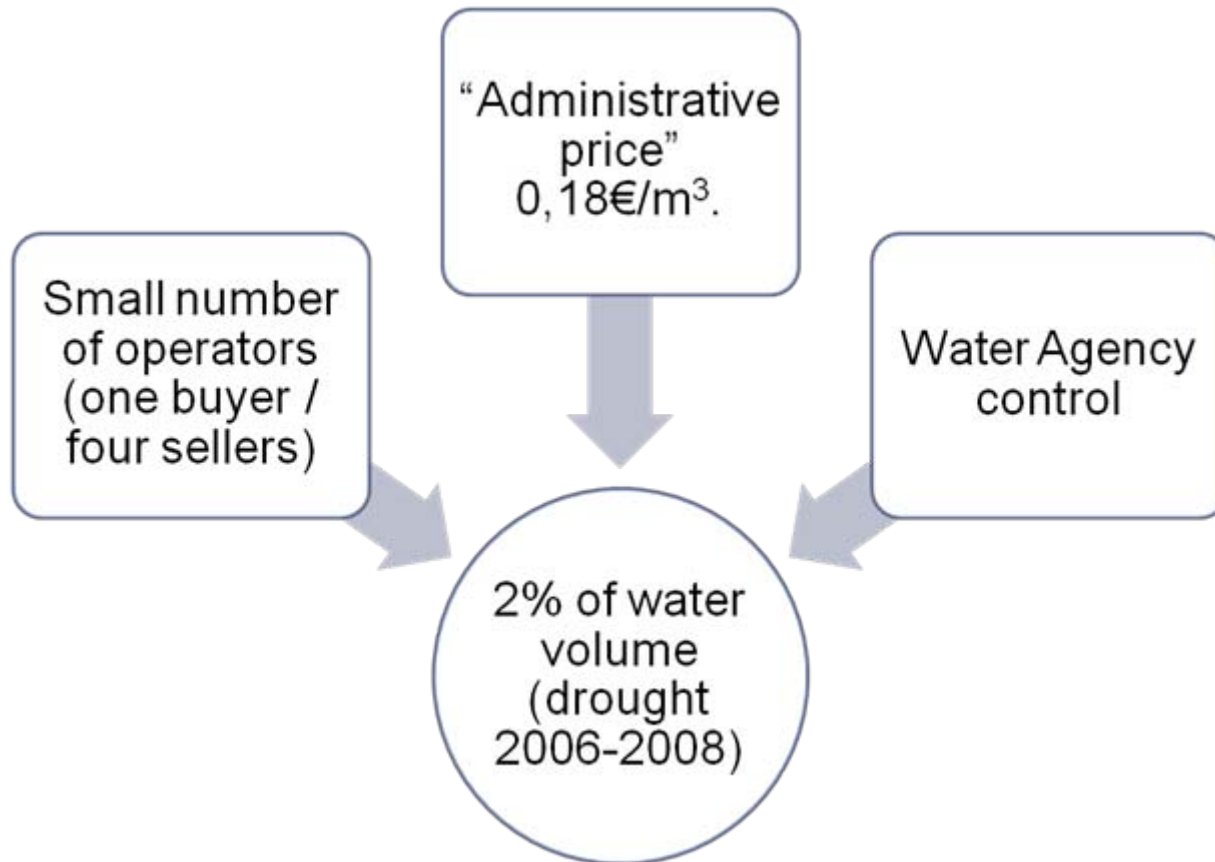


- ▶ Models detect large volumes of potential trade and potential gains with water going to higher value activities

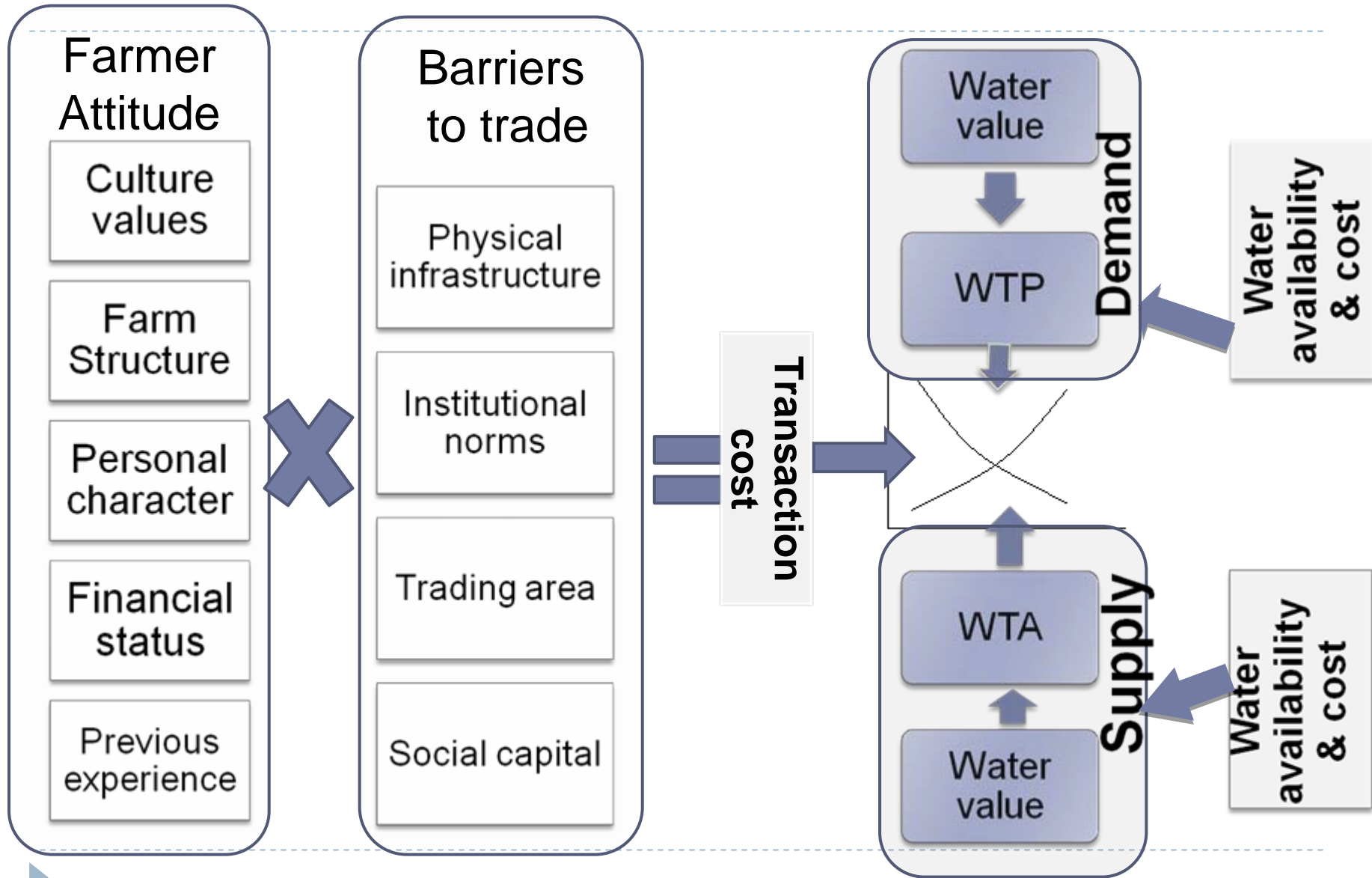
But observed trade is limited to a minor part of the theoretical

- Explanations of limited trade maybe either
 - (a) high transaction cost (not the case here)
 - (b) institutional barriers to trade

Comments, real world



Model farmer attitudes



Ex-ante attitudes of farmers

Focus group (1)

Statements	Disagree (1+2)	Neutral	Agree (4+5)
Water markets are a good idea	23%	20%	57%
Water markets are NOT a good idea because they increase water use as water which is sold is water that was not going to be used anyway, reducing the resource available	64%	27%	10%
Water markets are good because they allow farmers who want to abandon irrigation to facilitate exit through permanent water sale	27%	18%	54%
I agree with seasonal water sales as the water rights remain linked to the land	16%	12%	72%
Permanent water right trade is necessary to allow long term planning	41%	26%	33%



Focus group (2)

Statements	Disagree (1+2)	Neutral	Agree (4+5)
Water trade is NOT a good idea because water cannot be a commercial good and trade should not be allowed	48%	31%	21%
In the future I would be interested in buying seasonal water rights	35%	19%	47%
In the future I would be interested in buying permanent water rights	35%	23%	42%
In the future I would be interested in selling seasonal water rights	30%	19%	51%
In the future I would be interested in selling permanent water rights	52%	19%	28%
I would not sell it because in the future it is likely that the Government will reduce my allocation	28%	23%	49%
I would not buy it because I believe that I will get it free in the future	64%	28%	8%

Market estimation (WTP/WTA)

Influence of trade area and scarcity conditions

Seasonal water markets

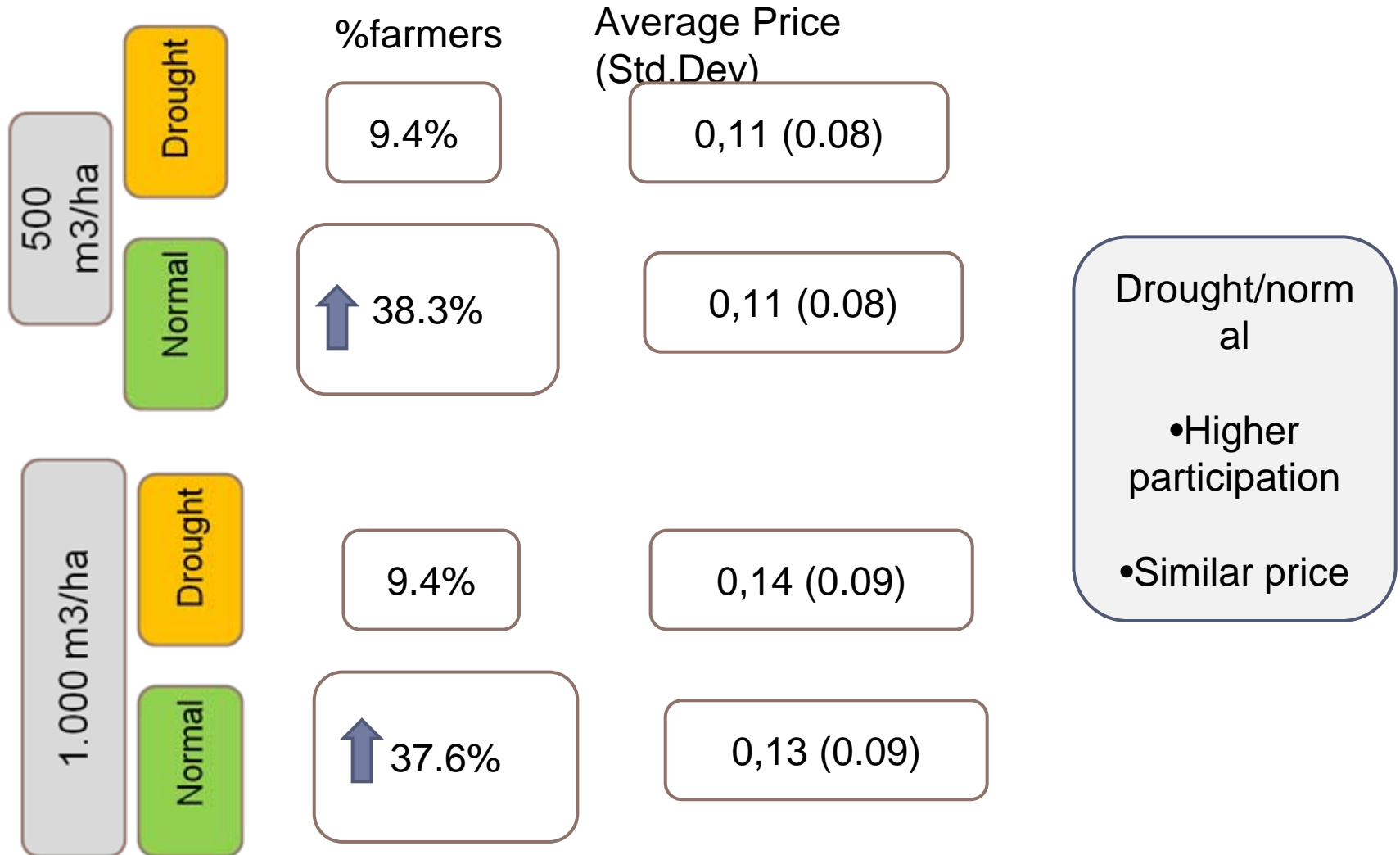
Trade limits	Guadalquivir	Almeria
yes, only within same district	13,3	66,0
yes, without difference of district	52,0	22,0
no, absolutely	34,7	4,0

Influence of scarcity conditions

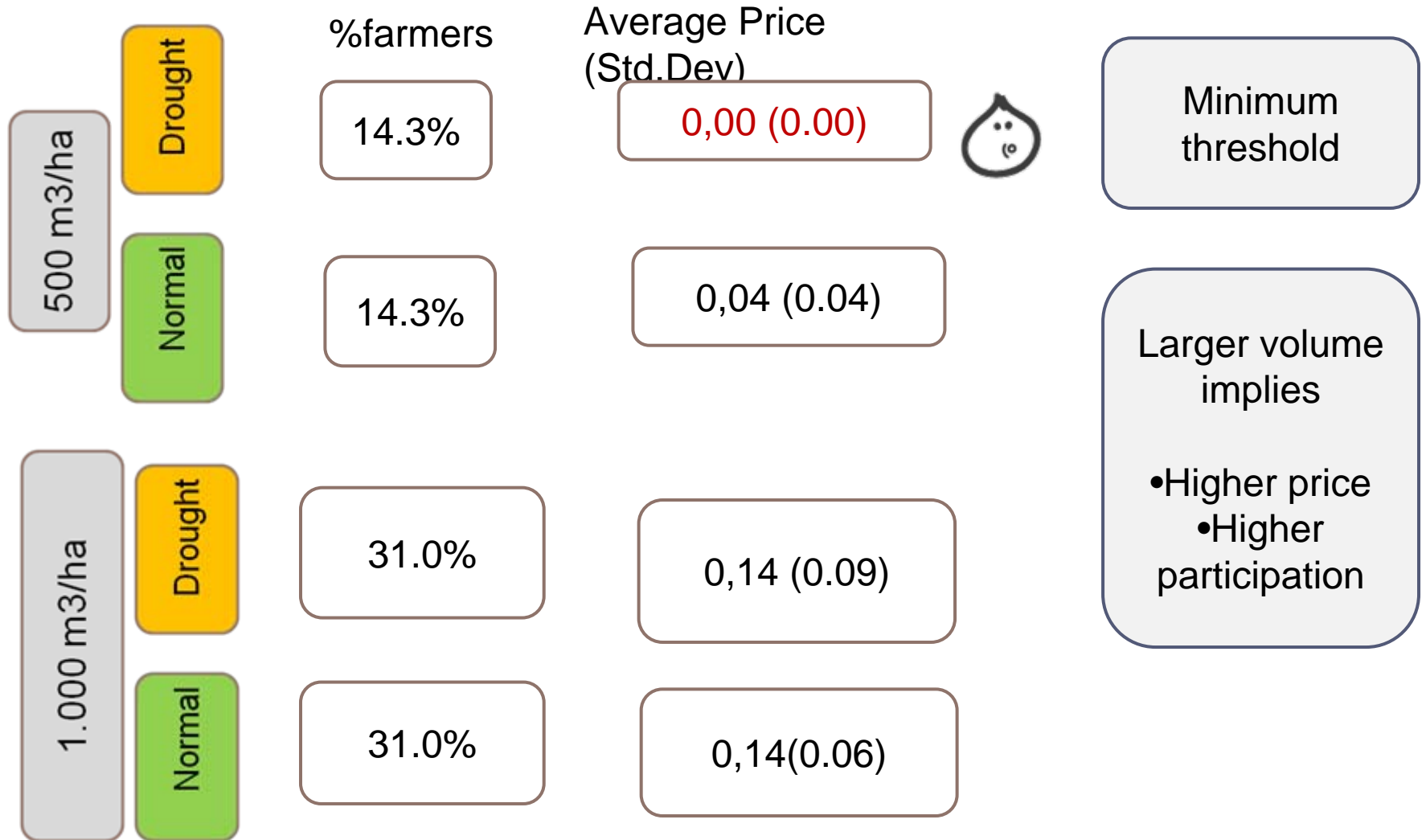
Willingness to buy	Guadalquivir: Irrigators			Guadalquivir: Full-rainfed		
	% farmers	Average*	Std dev	% farmers	Average*	Std dev
Normal year						
500_baseline WTP	9.4%	0.11	0.08	14.3%	0.00	0.00
1000_baseline WTP	9.4%	0.14	0.09	14.3%	0.14	0.04
Drought year						
500_drought WTP	38.3%	0.11	0.11	31.0%	0.04	0.08
1000_drought WTP	27.6%	0.13	0.09	31.0%	0.14	0.06

* Euro per m³

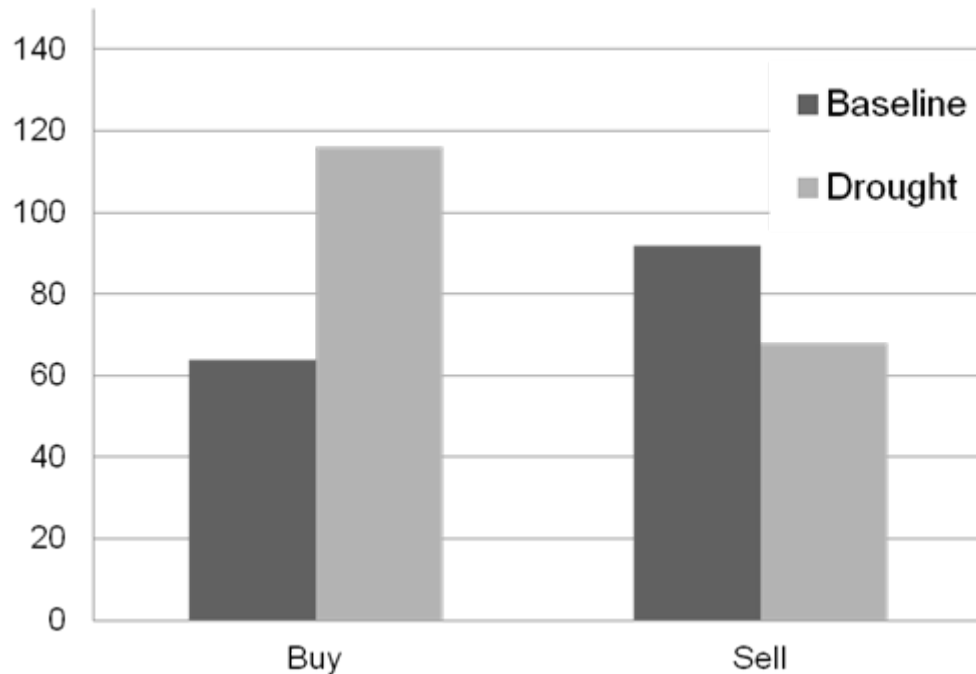
Impact of scarcity conditions (irrigated)



Impact of scarcity conditions (rainfed)



Trade drought vs baseline year



Who manages

trade?

Agent	%
Government	26,1
WUA involved	45,8
Farmers	26,1
Others	2,1
Total	100,0

Farmers' intentions to trade seasonal water depend upon water availability scenarios

Irrigators will trade only seasonal water,
Non irrigators are less interested in seasonal market

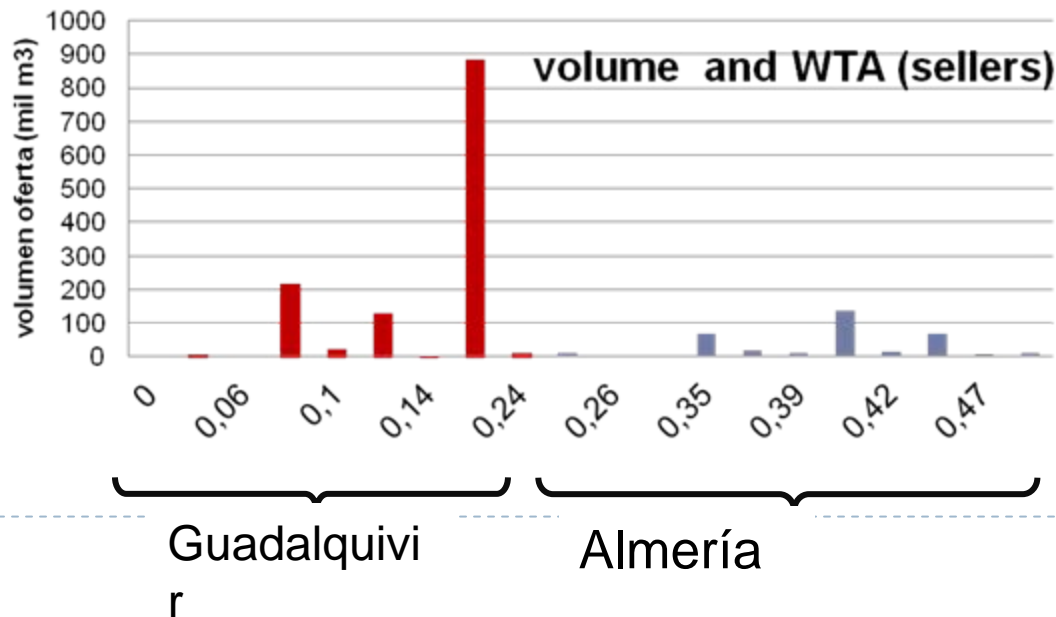
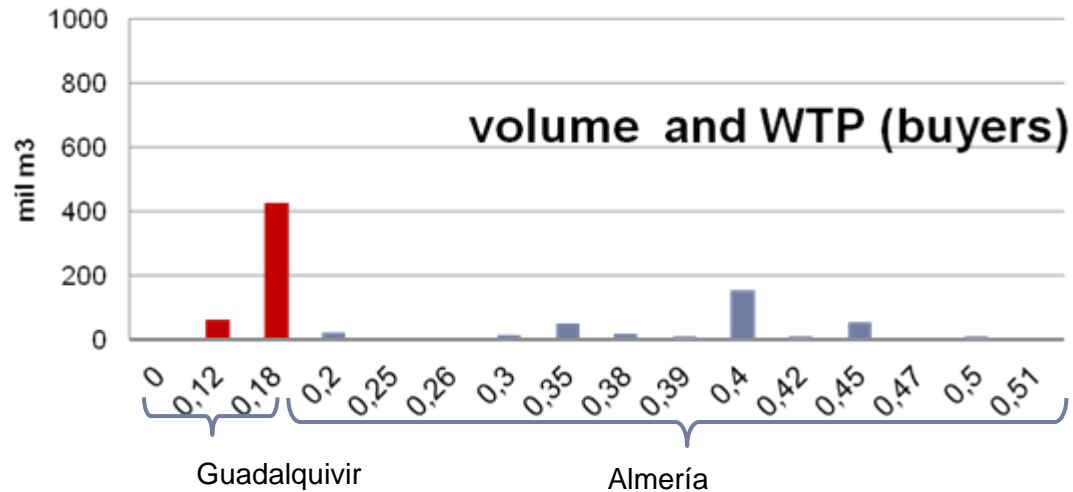
1) Comparing sellers (WTP) & buyers (WTA)

willingness to pay (euro/m ³)	Mediterranean			Guadalquivir		
	Min	Average	Max	Min	Average	Max
MAX_WTP_500	0,20	0,39	0,50	0,00	0,08	0,18
MAX_WTP_1000	0,20	0,39	0,50	0,10	0,15	0,40

willingness to accept (euro/m ³)	Mediterranean			Guadalquivir		
	Min	Average	Max	Min	Average	Max
MIN_WTA_500	0,25	0,41	0,50	0,05	0,15	0,24
MIN_WTA_1000	0,20	0,40	0,50	0,05	0,15	0,18

Average year the difference WTP (0,39 €/m³) vs WTA (0,15€/m³) predicts market from Guadalquivir to Mediterranean. Margin is higher than transport cost (0,20€/m³)

Results survey WTP/WTA



Survey, result:

- 2,4% of resources in Guadalquivir may be traded
- Trade increases to 4,9% under drought scenario

Average cost

Guadalquivir: 0.06 €/m³

Almería: 0.41 €/m³

The farmer

- ▶ Factors that increase probability(*) of behaviour as

Farmer type	Active trade	No trade
Scenario	Normal/Drought	Normal/Drought
Operation	Sell & Buy	No participate
Agricultural training	Yes	--
Innovation	Yes	No
Crops	Higher value crops	cereals & extensive
Supply guarantee	Low	High
Information on resources	Good	--

(*) logistic regression, significance > 0.1

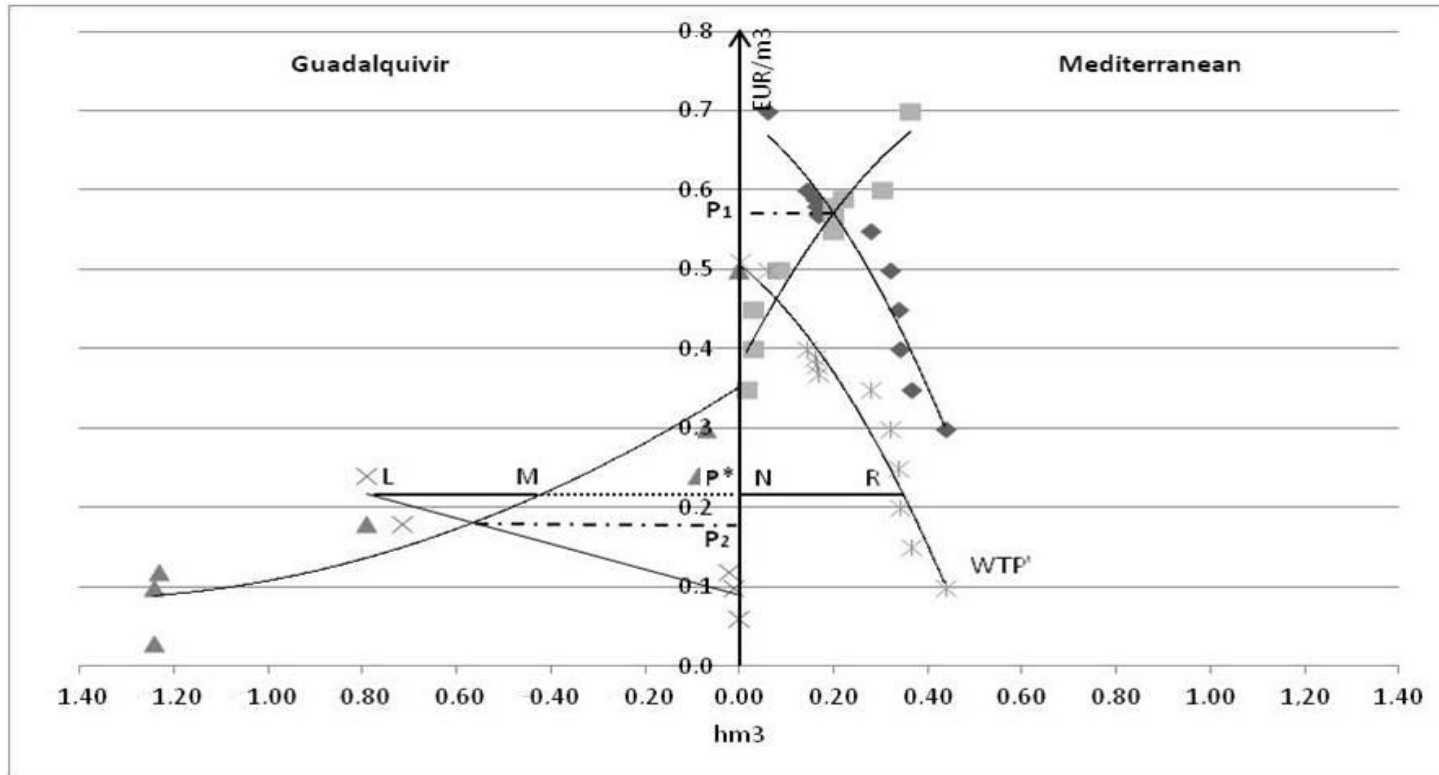


Concluding remarks

- ▶ Farmers with experience in trade are satisfied
- ▶ Market was a good tool for dealing with last drought
- ▶ Market is not operating in 'normal year'
- ▶ Permanent market has difficulties to operate
- ▶ Market is preferred by active, innovative farmers with high value crops
- ▶ Water market in Spain is similar to empirical evidence elsewhere



Market intra and interbasin



		Point	Price €/m ³	Almeria	Guadalquivir
Intra	Almería	P1	0,42	0,23	--
	Guadalquivir	P2	0,13	--	0,48
Inter	Joint- basin	P*	0,17 (0,37*)	0,28	0,43

In our survey, 2,4% of resources in Guadalquivir may be traded

Water trade increases to 4,9% under drought scenario