

**Oviaragón**

**pastores**   
grupo cooperativo  
*carácter noble*

## MANAGEMENT OF HIGH PROLIFICACY GENES IN MEAT SHEEP:

### The ROA allele



**iSAGE Training Course and Workshop**

**INNOVATIONS TO IMPROVE SUSTAINABILITY  
IN THE SHEEP AND GOAT SECTOR  
(Zaragoza, Spain, from 10 to 13 December 2019)**



**The main goal of the cooperative is to increase the profitability of farms and improve farmers quality of life, providing the best products in terms of quality and safety for the final consumer.**

# Rasa Aragonesa Breed

.... Rasa Aragonesa is a local meat sheep breed raised in extensive systems in Aragón

Phenotypic Prolificacy  
= 1,37 lamb/birth  
(17th catálogo  
selección Upra)

Heritability = 0,034  
(Jurado et al.,2008)



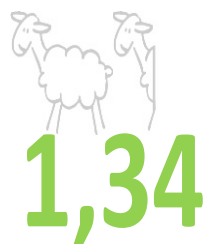


**Prolificacy improving is a Good way to increase the Gross Margin**

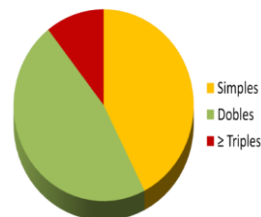
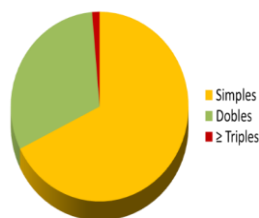
Increase of 1% in:	Gross Margin Change for sheep	Gross Margin change for UTA
N° births for sheeo and year= $X_2$	+ 3,0%	+ 3,0%
<b>Prolificacy</b> = $X_3$	<b>+ 3,4%</b>	<b>+ 3,4%</b>
% Lambs mortality= $X_4$	- 0,6%	- 0,8%
Average prize of the sold lamb= $X_5$	+ 3,6%	+ 4,3%
€ for feeding for sheep and year= $X_6$	- 2,6%	- 2,7%
Total laboral cos = $X_7$	- 1,2%	



# 2007 Year: FecXR ALLELE OF BMP15 GENE



Sin  
tratamiento



$X X^R$

+0,36 lambs/birth



$X^R X^R$

STERILITY



$Y X^R$

MALE R®



# iSAGE Study Case : ROA allele Effects

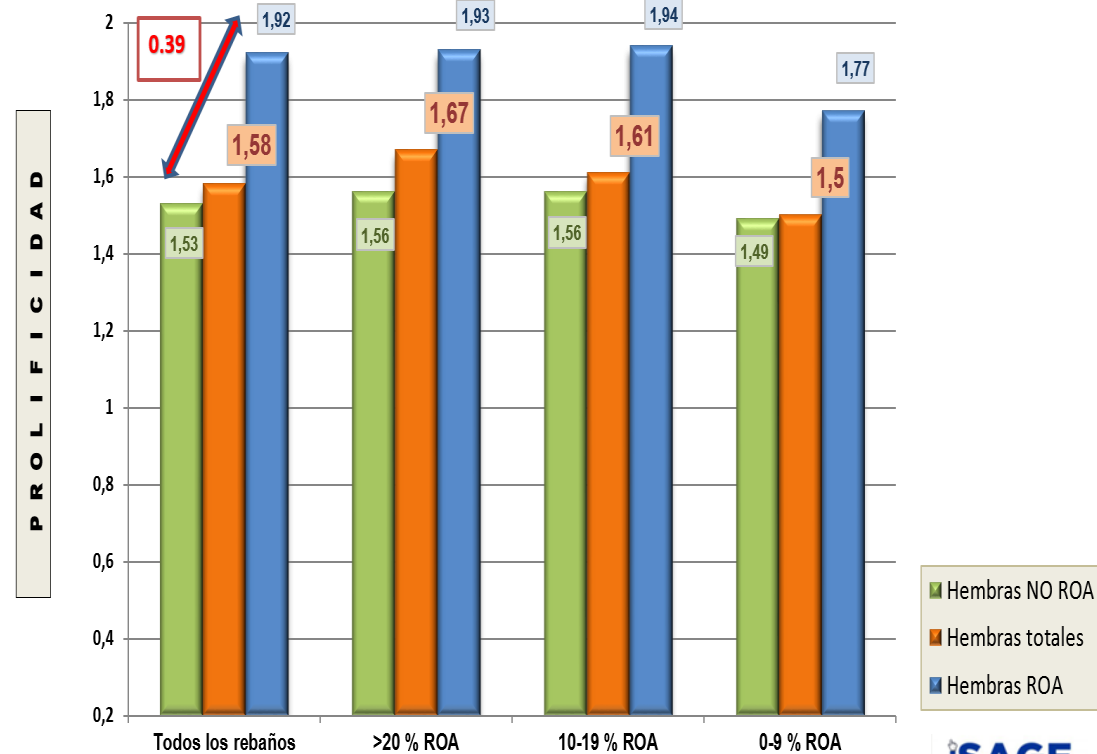
12 años de  
difusión  
ROA

COMO VARÍA LA PROLIFICIDAD MEDIA EN EL REBAÑO SEGÚN EL PORCENTAJE DE "HEMBRAS ROA"

We had work on 35 farms with diferente % of ROA sheep in terms of fertility, prolificacy and mortality .

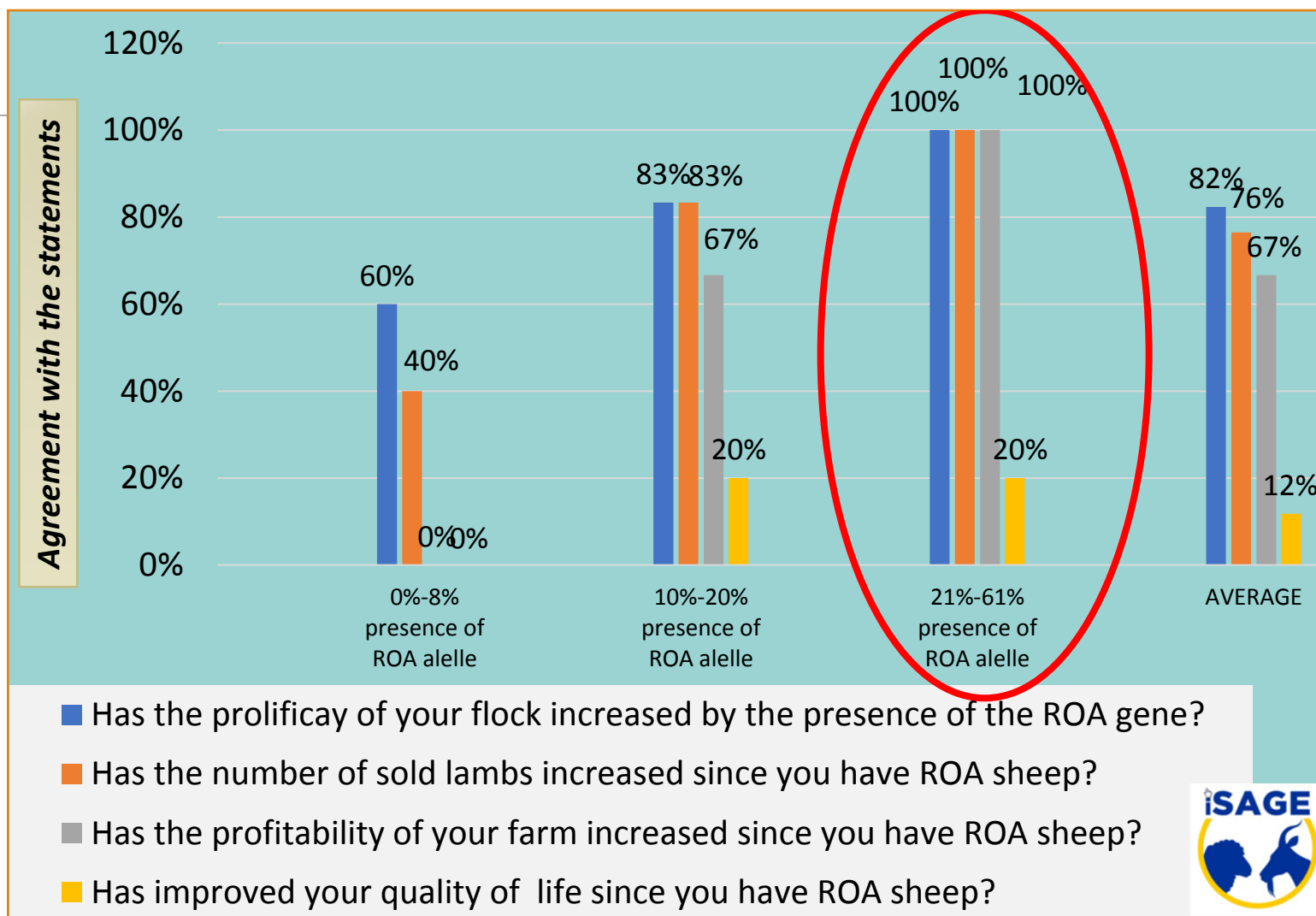
&

We had analyzed the perception of the inclusion of the ROA gene in herds through surveys



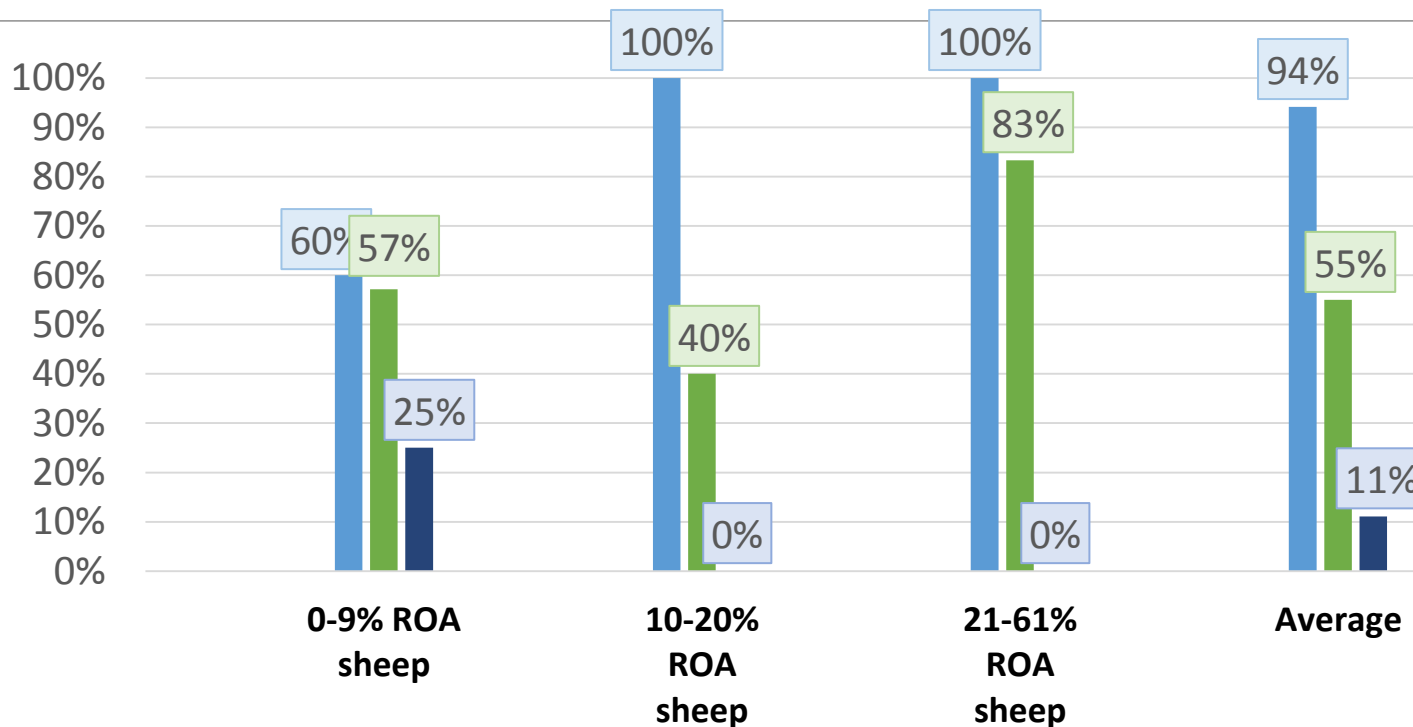
# Perception of the effect of the ROA allele across farms with different proportions of ROA sheep

ISAGE  
FARM  
ANALYSIS



## Perception of the effect of the ROA allele across farms with different proportions of ROA sheep

Agreement with the statements



- I'm happy to have ROA sheep
- I'm going to increase the number of ROA sheep
- There is more mammary disease since I have ROA sheep



# Disseminate the allele across interested farms

AI



RAMS



250.000

200.000

150.000

100.000

50.000

0

206.907

15.208

161

256

Nº Animals

Nº flocks

ROA  
ANIMALS

TOTAL  
ANIMALS

Prolificacy genes increase farm profitability without increasing flock size or intensifying production

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The ROA allele has been successfully spread across the Rasa Aragonesa sheep population, increasing to those farmers willing and technically prepared to increase prolificacy.

# Drivers and constraints for a successful implementation of the innovation



A GOOD GENETIC MANAGEMENT IS CRITICAL  
BECAUSE HOMOZYGOSITY RESULTS IN  
STERILITY.

KEY FACTORS ARE:

- 1-THE IDENTIFICATION OF ANIMALS CARRYING THE ALLELE
- 2-STRICT CONTROL OF PROGENY
- 3-RECORDING OF PRODUCTION DATA
- 4-WELL-ESTABLISHED HERD BOOK
- 5-GENETIC ANALYSIS OF ALL MALES



## NEW GENETICS VARIANTS & EARLIEST GESTATIONAL AGE



**SOCIAL  
ECONOMIC  
AND  
ENVIRONMENTAL  
SUSTAINABILITY**







Thanks for your attention !!