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南京中山植物园
NANJING BOTANICAL GARDEN MEM. SUN YAT-SEN



High fertilization decreases blueberry yields and fruit quality in China

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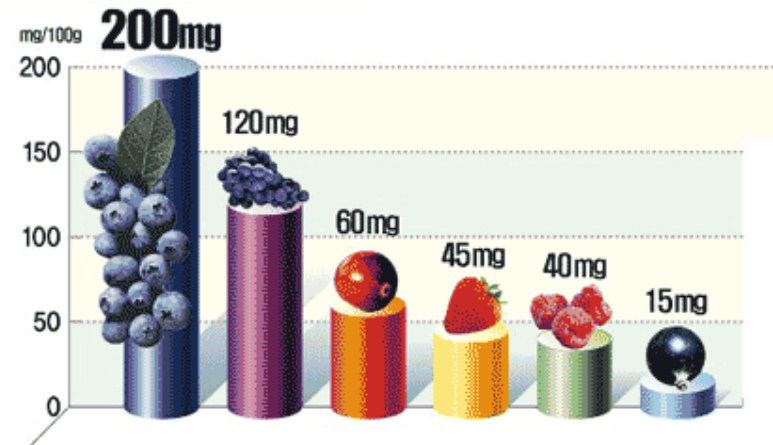
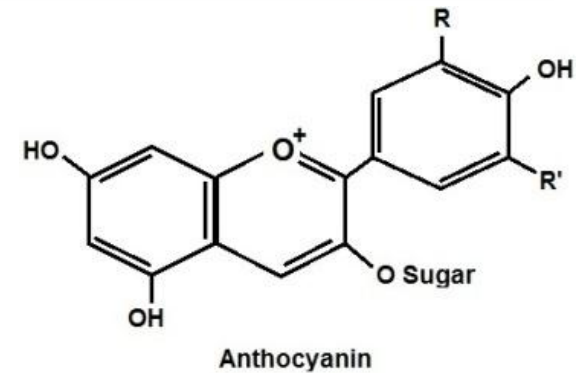
Institute of Botany, Jiangsu Province and Chinese Academy of Sciences

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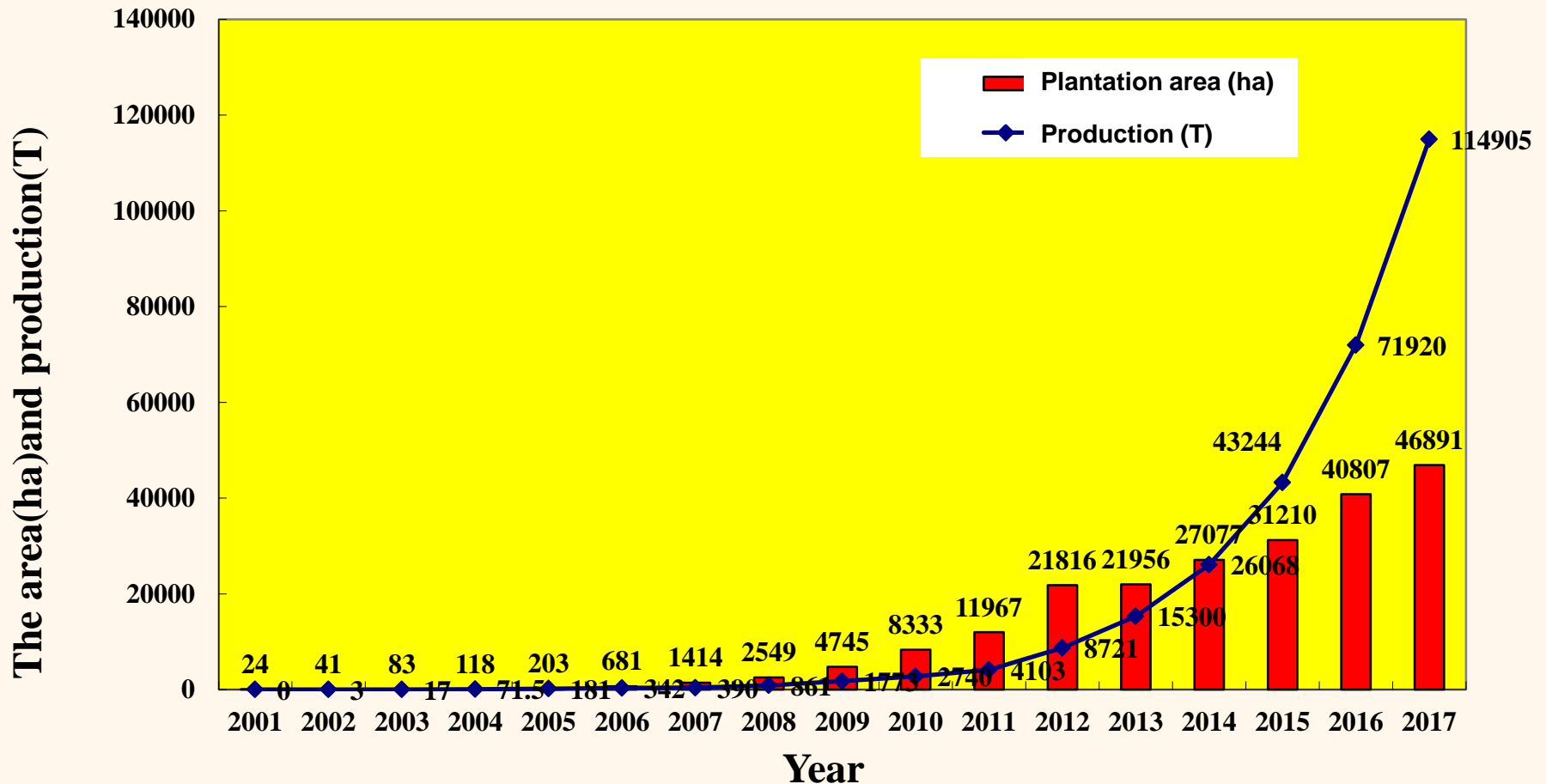
Haifa Israel



- Acid-loving plants(4.5~5.5)
- Prefer organic matter rich soil
- Shallow roots without hair

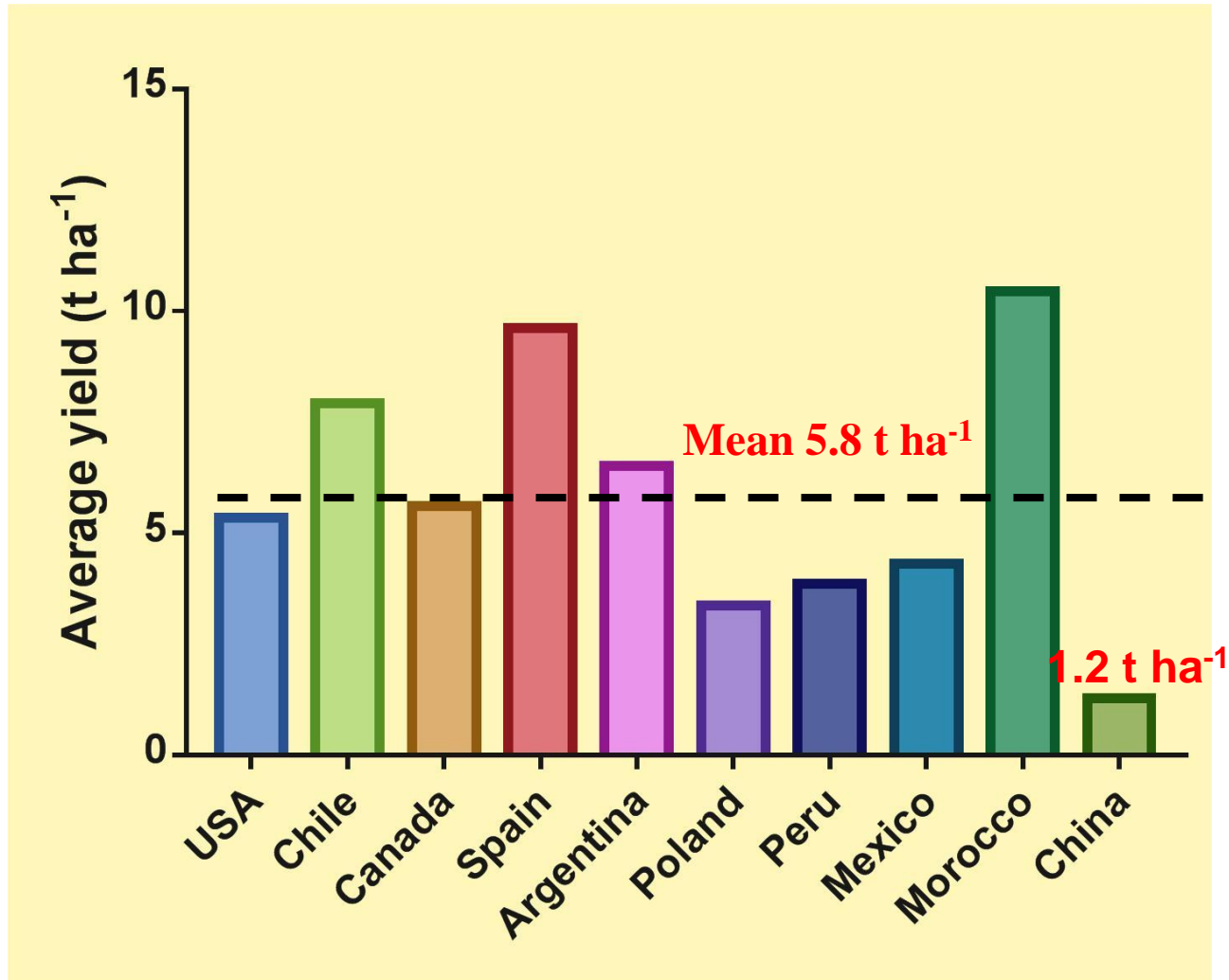


Blueberry plantation area and yields in China



The area and production accounted for **16%** and **4%** of the world in 2017, respectively.

Average yields of top ten planting country in 2016



New fields



unsuitable field



Cultivar problem

Cultivation problem

Cultivation problem



preparing



planting



1st Y



2nd Y



3rd Y



4th Y



Too many fertilizer



Vigorous growth?

Balance growth?



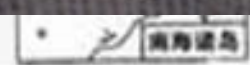
➤ **How much fertilizer is the optimal, based on the grower's application method?**

Located in middle of Yangtze river annual mean

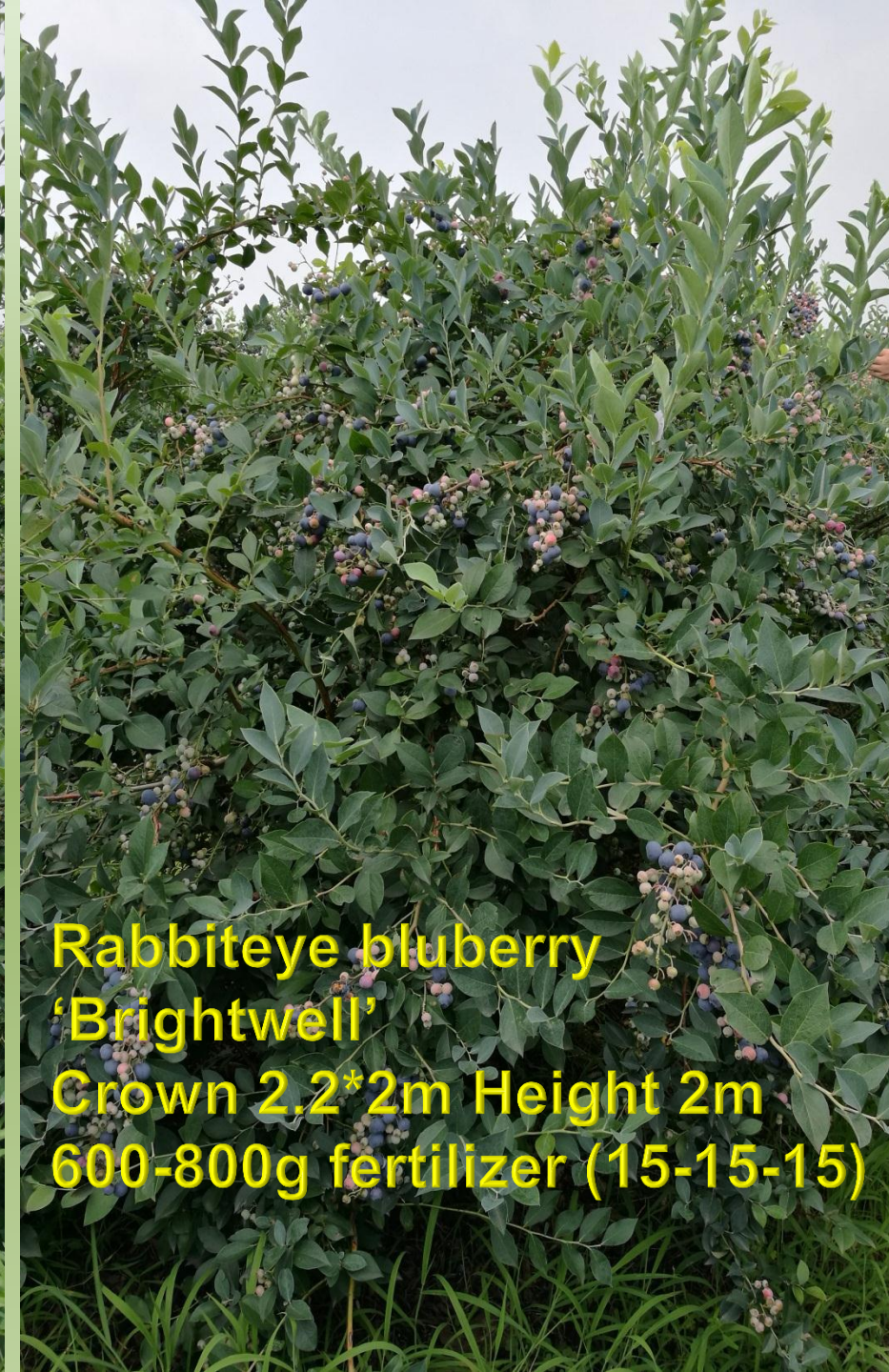


Image © 2019 DigitalGlobe

Google Earth



The 6th year

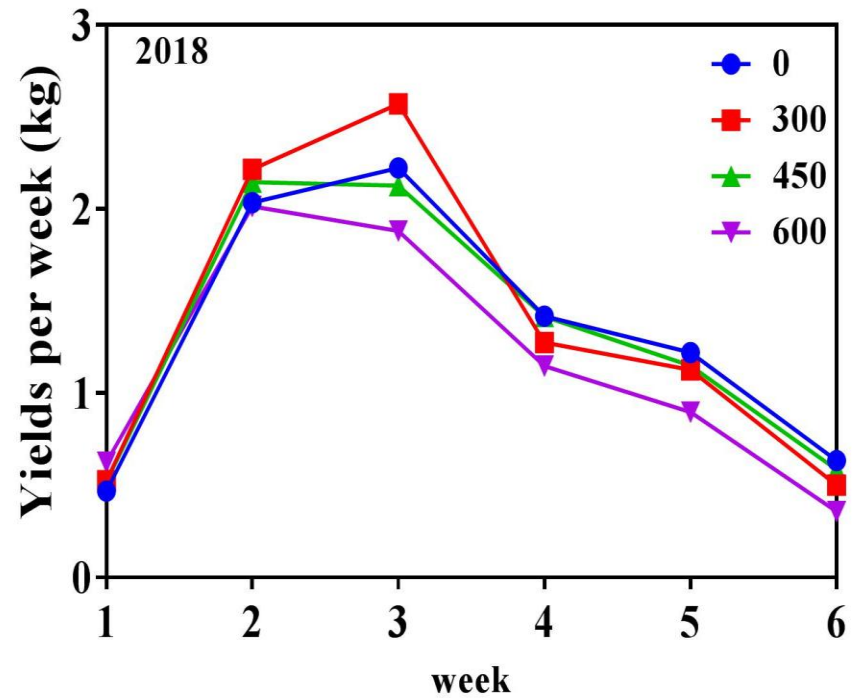
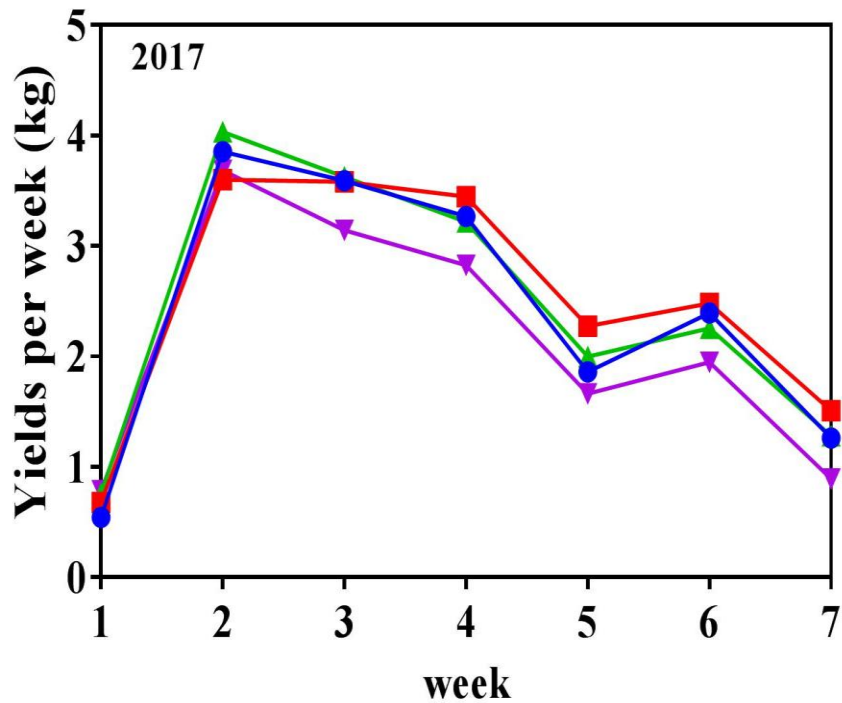


**Rabbiteye bluberry
'Brightwell'
Crown 2.2*2m Height 2m
600-800g fertilizer (15-15-15)**

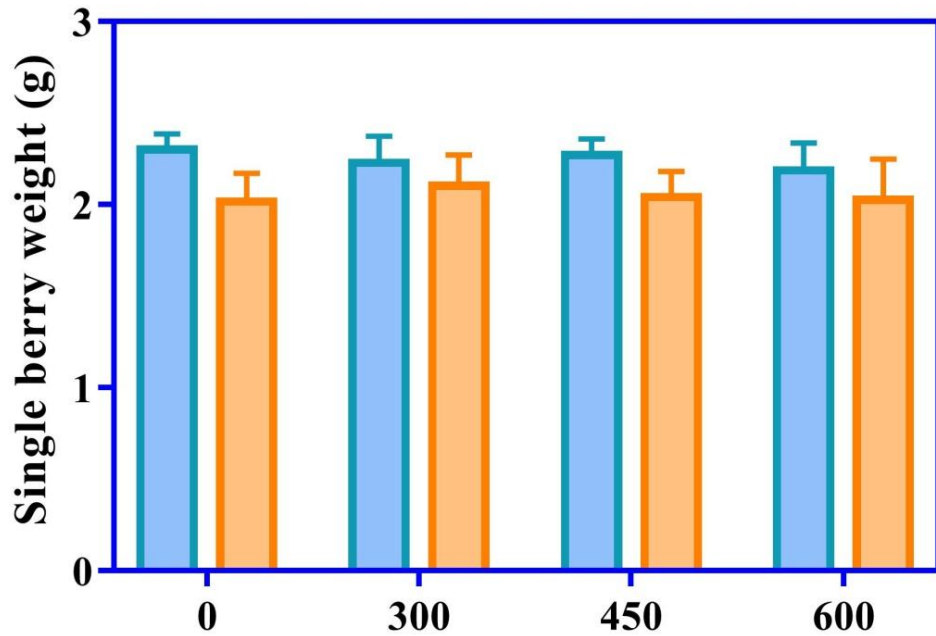
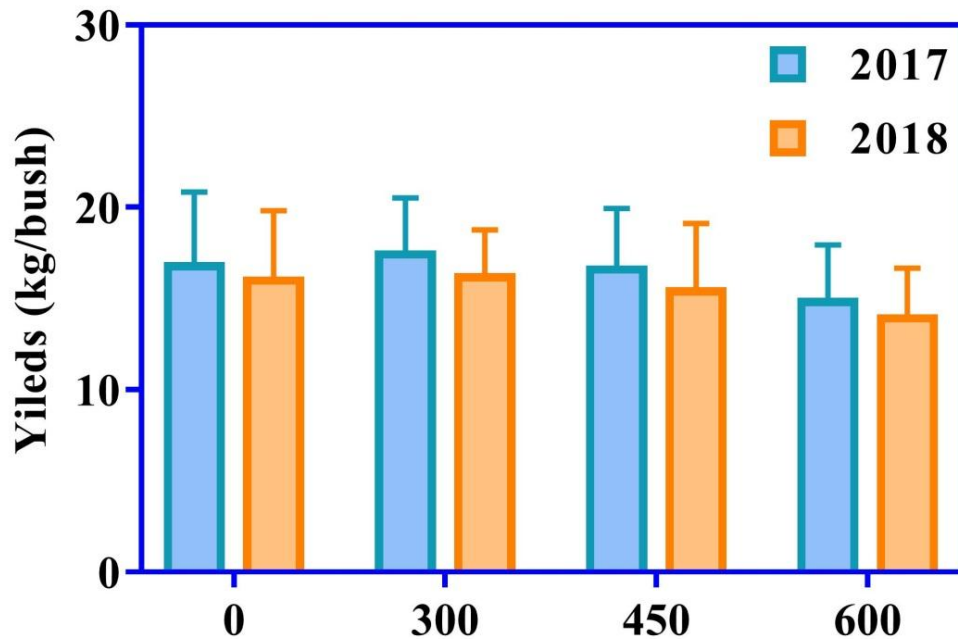
Treatments



- 0, 300, 450, 600g 15-15-15 Fertilizer
- applied 3 times a year, in the beginning of March, April and August, respectively
- applied in two holes under the bush.
- 7 bushes for each treatment, 3 replicas.

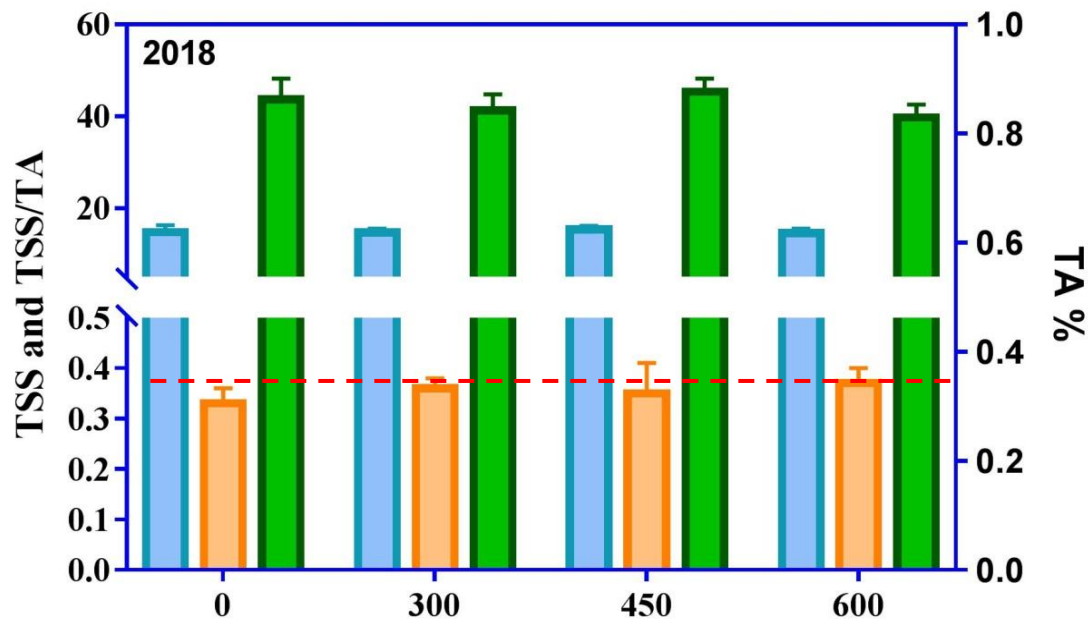
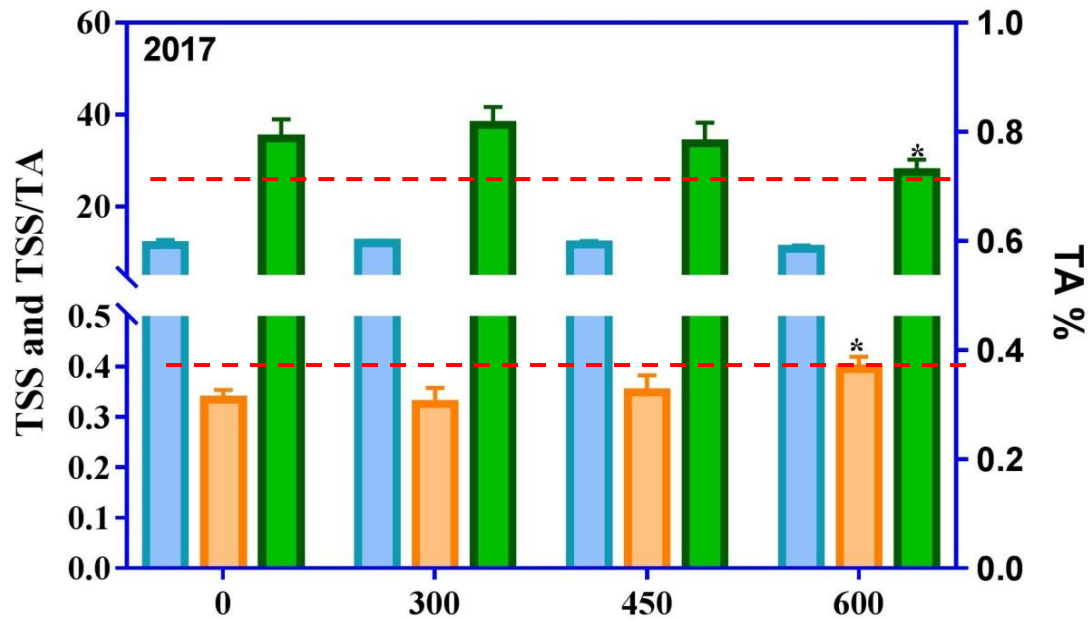


**The 600 g treatment have low yields after 1st week.
Treatments don't affect blueberry harvest season.**



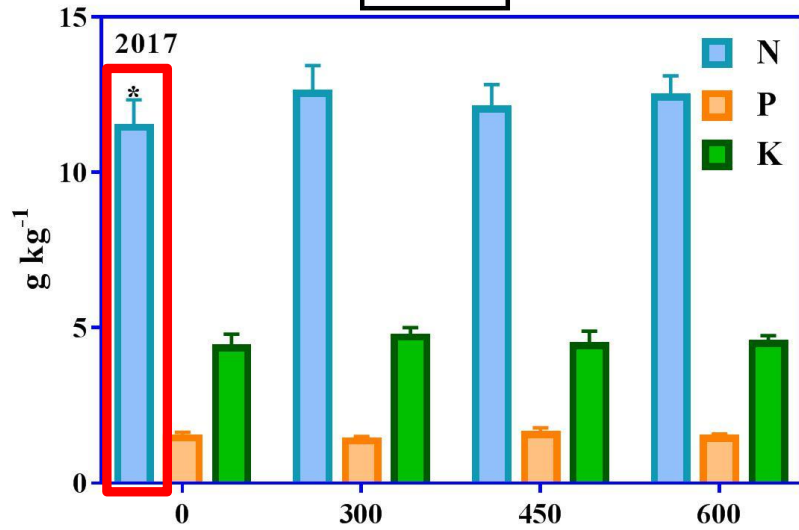
Yield of the 300 g treatment was higher by 17.6% and 16.5% than 600 g treatment, respectively, in 2017 and 2018.

Treatments don't affect single berry weight.

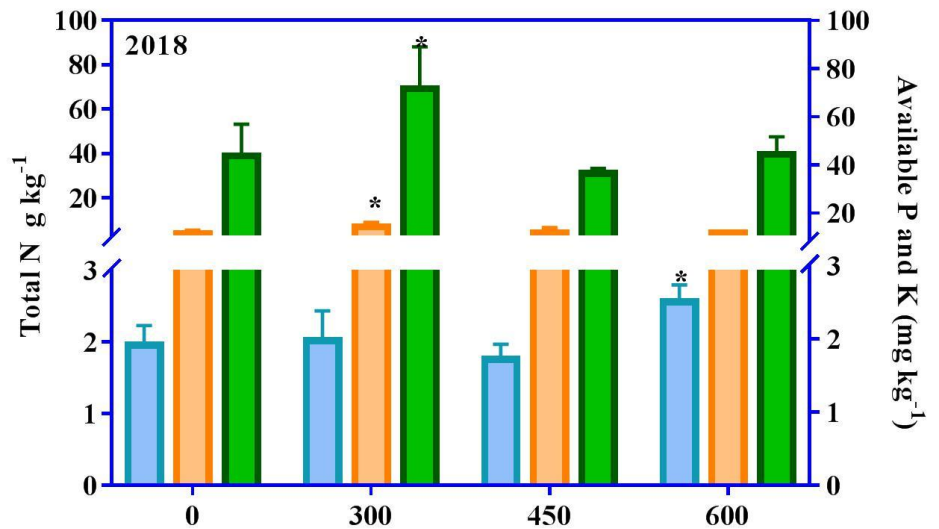
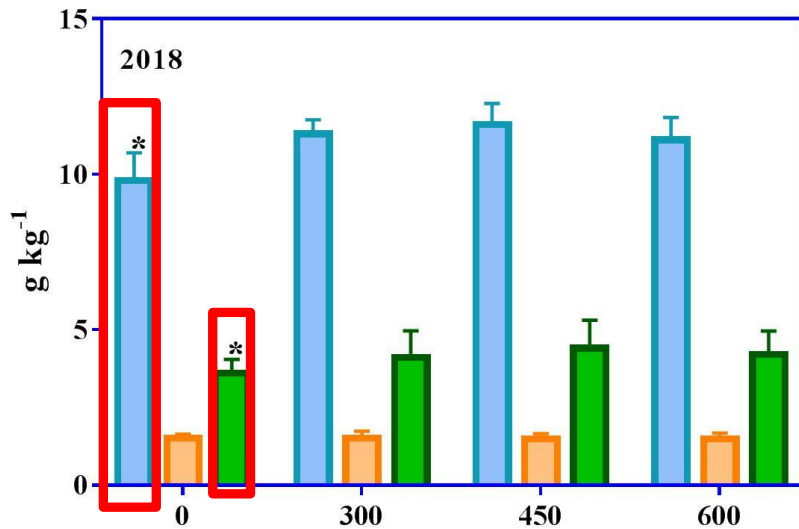
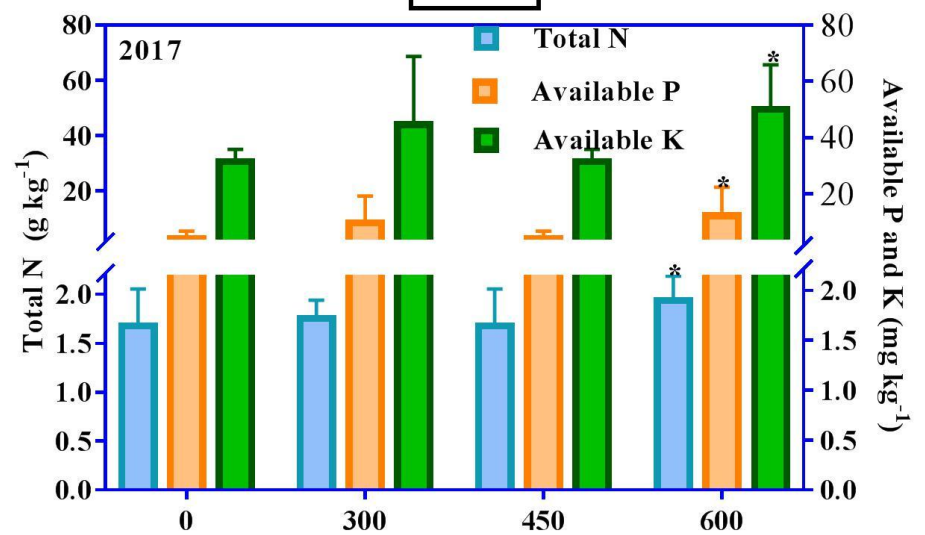


Treatment with 600g fertilizer significantly increased blueberry TA (titratable acid) content and decreased TSS/TA in 2017.

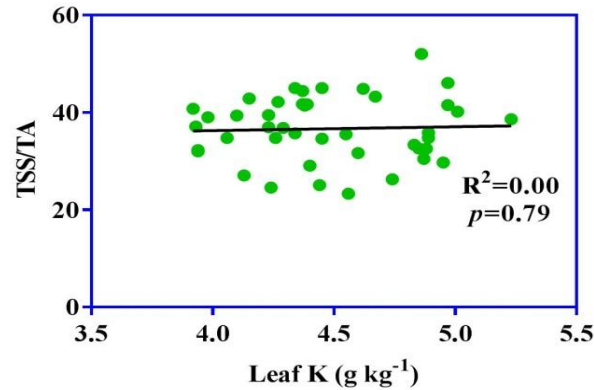
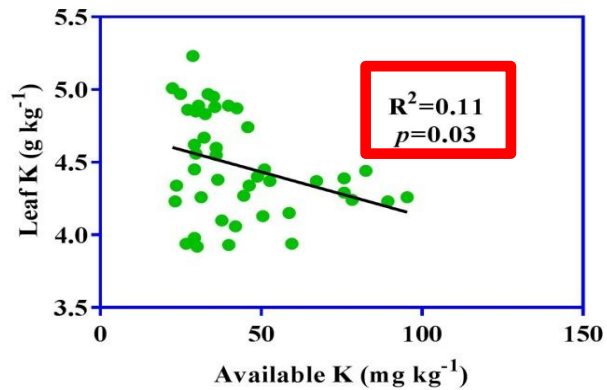
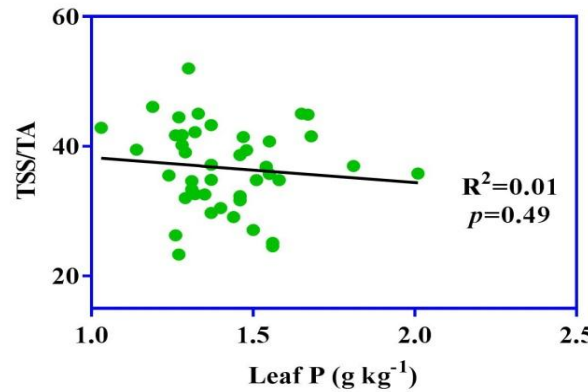
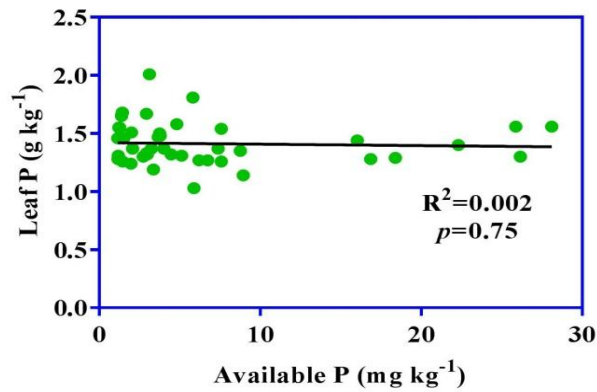
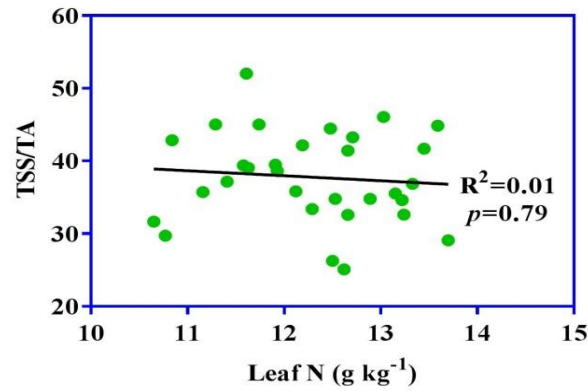
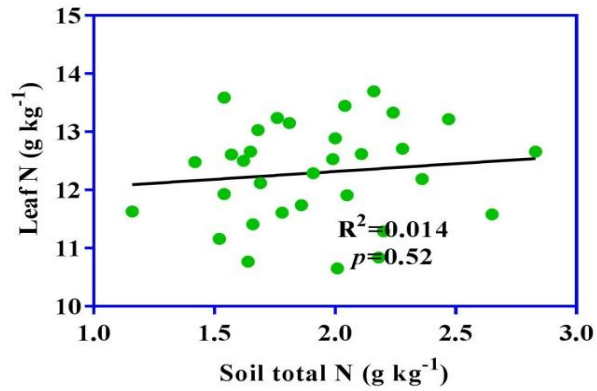
Leaf



Soil

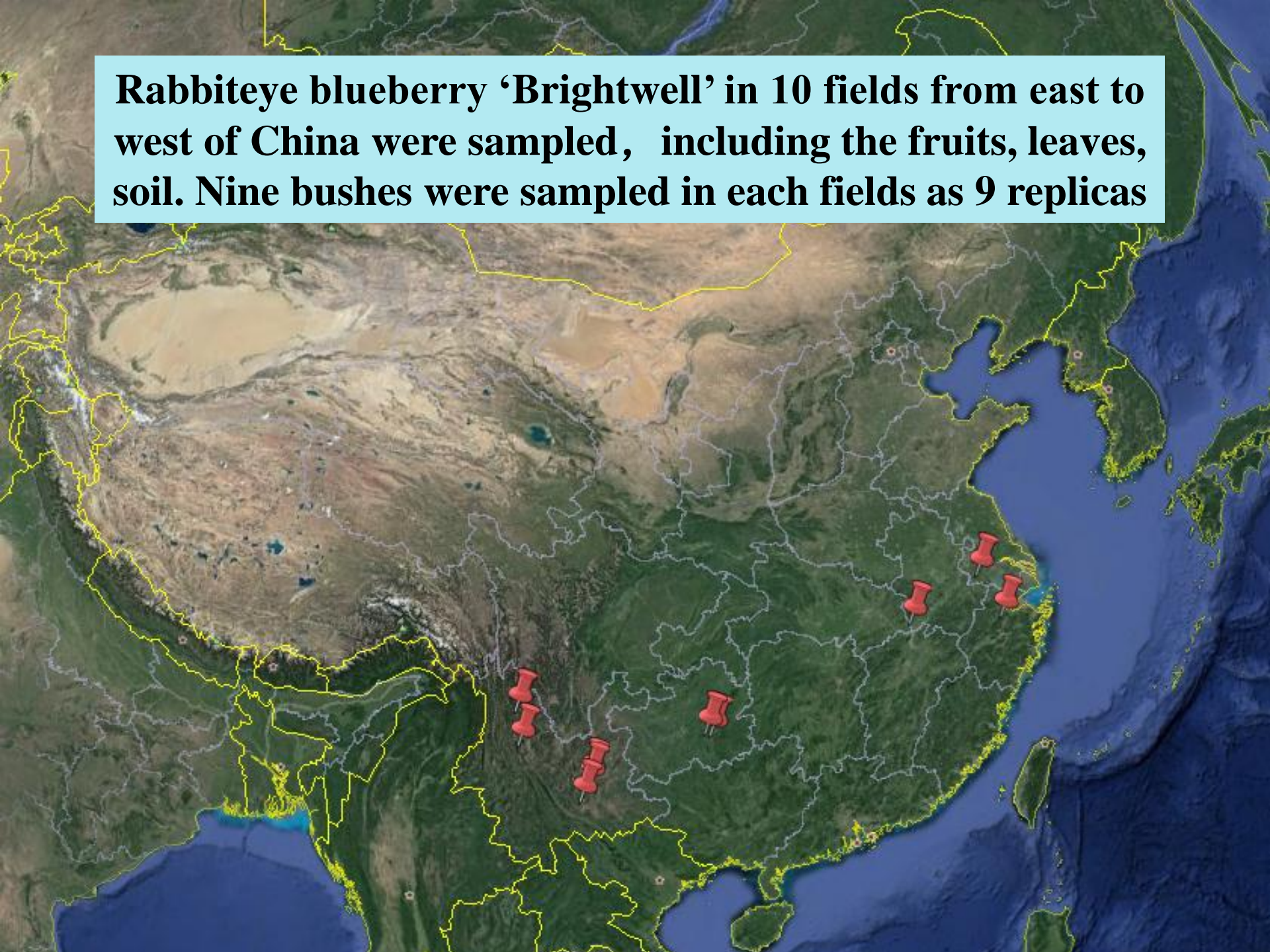


N concentration in leaves of 0 treatment was significantly lower compared to other treatments. Soil nutrients didn't increased with the increasing amount of fertilizer.



There were no correlation between leaves nutrients concentration and TSS/TA.

Rabbiteye blueberry 'Brightwell' in 10 fields from east to west of China were sampled, including the fruits, leaves, soil. Nine bushes were sampled in each field as 9 replicas



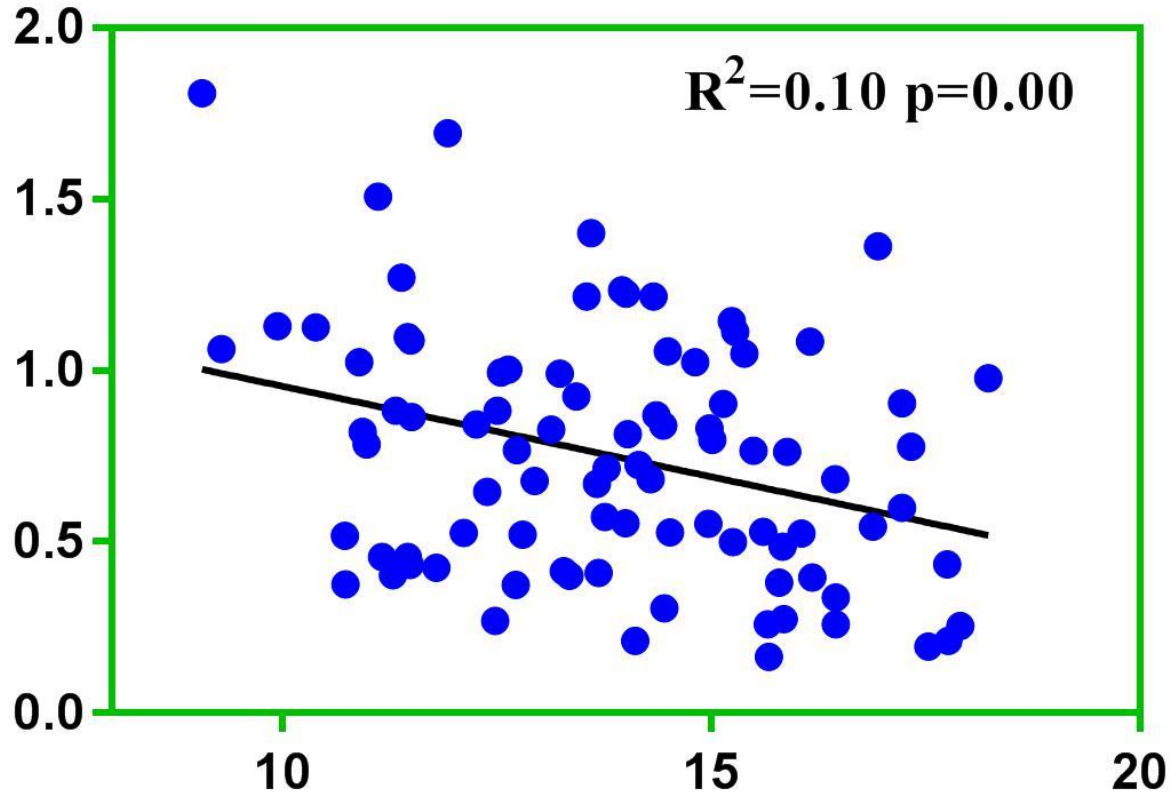


	SN	SP	SK	LN	LP	LK	TSS/TA	ACs
SN	1							
SP	nd	1						
SK	nd	nd	1					
LN	nd	0.25*	nd	1				
LP	0.22*	nd	0.40**	0.24*	1			
LK	nd	nd	nd	0.24*	0.44**	1		
TSS/T A	nd	nd	0.43**	nd	nd	nd	1	
ACs	nd	nd	nd	-0.31**	nd	nd	-0.47**	1

Acs: total anthocyanins content



ACs μg glucocyanidin equivalent/g



Leaf N (g kg⁻¹)

Summary



- **Compared the customary fertilization, it is recommended to applied 300g/bush, which increased the yields by 16.5-17.6%, and significantly increase berry quality in 2017.**
- **High N concentration in leaves could decreased blueberry anthocyanin content.**

An aerial photograph of a rural landscape. The terrain is hilly and covered with green vegetation, including terraced fields and rows of trees. A dirt road winds through the landscape, and a large metal power tower stands on the left side. In the background, there are more hills and a small cluster of buildings. The sky is clear and blue.

Thanks for the attention!

The members in blueberry group



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Pro Shanan he



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