



THE EFFECT OF THE USE OF DIFFERENT ORGANIC MATERIALS AS FERTILIZATION MATERIALS ON FRUIT QUALITY AND EFFICIENCY IN STRAWBERRY GROWING

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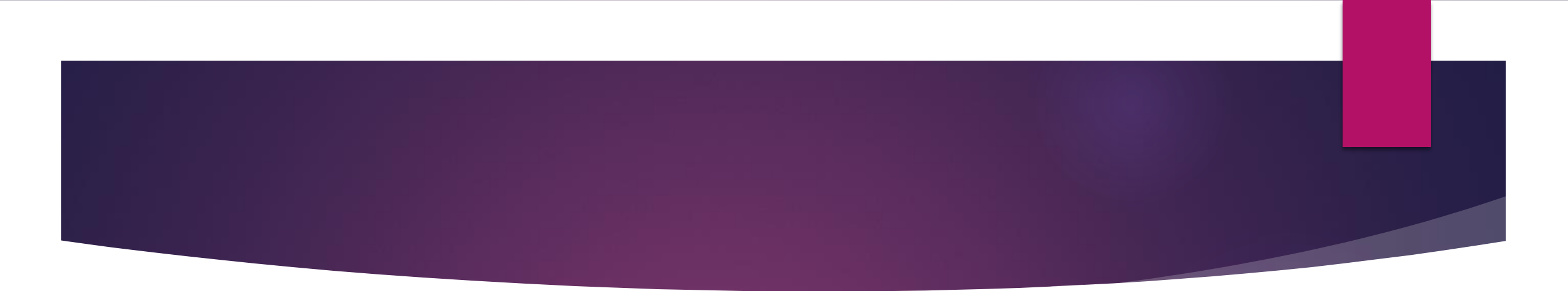
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Department

AYDIN-2023

It was presented in Turkish at the congress.



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- ▶ Nowadays, long-term and excessive chemical fertilizer applications in agricultural areas negatively affect the physical, chemical and biological properties of the soil and pollute the groundwater, leading to the search for new resources as alternatives to chemical fertilizers.
 - ▶ Research conducted in recent years carried out in the industries of food, textile, etc. has become possible to reintroduce waste from industrial sectors and cities' sewage water and garbage into agriculture as organic fertilizer.
 - ▶ It is important the evaluation of olive pomace juice, one of the by-products of olives and olive oil, which has an important potential for the Aegean region where Aydın province is located.

Should black water environmental pollution continue?



KARASU Çevre Kirliliđi
Devam Etsin mi?

Atıksız Üretim ile her yıl
300 milyon Dolar
Katma Deđer üretelim mi?



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Research Process of the Usability of Olive Pomace Juice as Organamineral Fertilizer

- ▶ 2003-2008. Black water environmental pollution awareness
- ▶ 2008- 2015. The necessary and sufficient raw materials can be collected without being released into the receiving environment and waste-free production begins in olive oil production phase.
- ▶ 2015. KOSGEB (Production of liquid organic fertilizer with Ar-ge innovation Project.
- ▶ 2017. Industry & University cooperation
- ▶ 2020. Technopark Zero Waste Management
- ▶ 2023 Patent application



- 2000-2008 Karasu Çevre Kirliliği
- 2008-2015 gerekli ve yeterli hammaddenin alıcı ortama bırakılmadan toplanabilir olması ve atıksız üretimin Zeytinyağında başlaması ..
- 2015 KOSGEB (ar-ge inovasyon projesi ile sıvı organik gübrenin üretilmesi) ve
- PROJE OLUMLU SONUÇ RAPORU YIL 2017
- 2017 ÜNİVERSİTE & SANAYİ İŞBİRLİĞİ 3 YIL süren sıvı organik gübrenin bitkiler üzerindeki etkilerinin araştırılması 2020
- 2020TEKNOPARK ZEYTİNYAĞI ÜRETİMİNDE SIFIR ATIK ÜRETİM YÖNTEMİ'nin ortaya çıkması 2021
- SONUÇ: 2021PATENTLİ YENİ ÜRETİM YÖNTEMİ'nin tescil edilerek bugün sizlerle paylaşılması 2023



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PURPOSE OF THE STUDY

- ▶ The most important practices of producers in strawberry growing areas that cause serious harm to human and environmental health are the use of very intense synthetic chemical fertilizers to increase agricultural productivity.
- ▶ In this study, different doses of liquid olive pomace juice, which is an olive oil factory residue, was mixed with liquid animal feces and whey, and its usage possibilities as liquid organomineral fertilizer and its effects on the yield and quality characteristics of strawberry plants were investigated.
- ▶ In the project, while olive pomace juice is brought into the economy as fertilizer, it is thought that it will also contribute to the production of strawberries that are healthy for the environment and human health.

Material and Metot

- ▶ Rubygem
- ▶ Sabrina

Fresh seedling



GREENHOUSE PREPARATION



PHYSICAL AND CHEMICAL PROPERTIES OF GREENHOUSE SOIL

Name Surname= Sultanhisar MYO	Date Received For Example= 20.10.2020
Province/District= Aydın-Sultanhisar	Plant Type/Age = Strawberry
Bay/Position=	Area/Irrigation = 260 m ² drip irrigation

Örnek No	Çilek		
BÜNYE	Sandy	52,1	L= Loamy
	Silt	35,5	
	Clay	12,4	
pH	7,35	Neutral	
Total Salt %	0,58	Medium Salty	
Chalk %	3,23	Chalky	
Organic Matter %	1,07	Very Low	
Available Phosphorus (P) ppm	3,77	Low	





December 16, 2020

Table 1. Fertilization plan

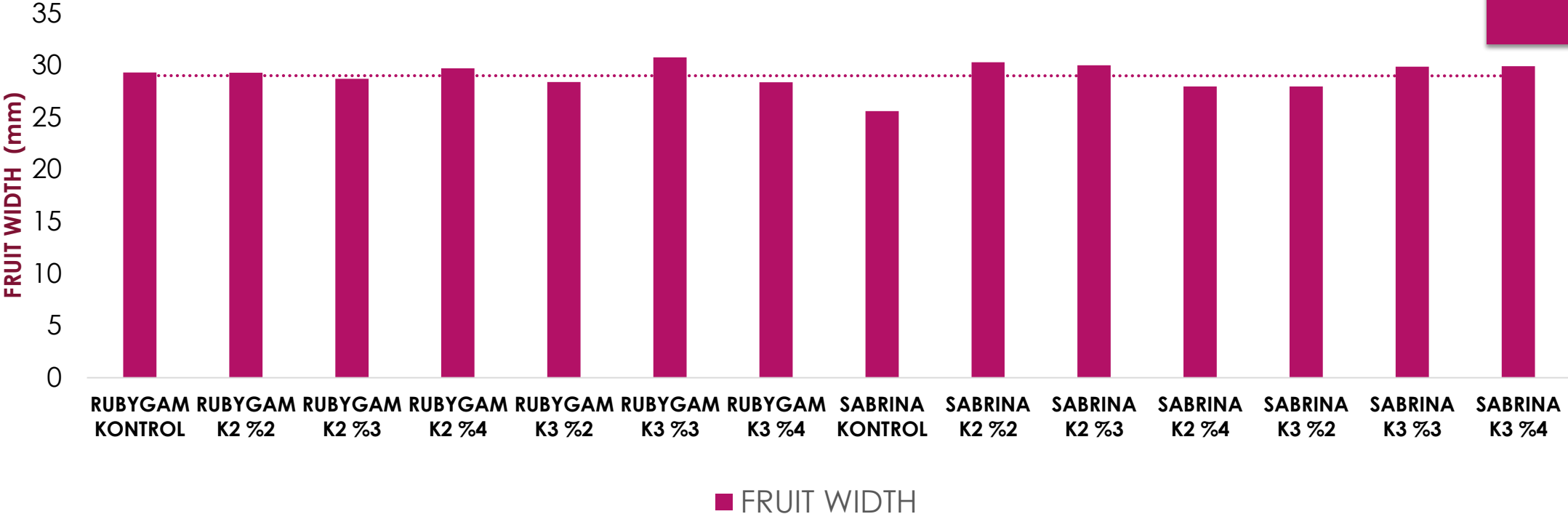
APPLICATION NO	APPLICATION	FERTILIZER SUPPLEMENT
1	Control	15.15.15 compound fertilizer (25/da)
2	K2 %2 olive pomace juice mixture	15.15.15 compound fertilizer(25/da)
3	K2 %3 olive pomace juice mixture	15.15.15 compound fertilizer(25/da)
4	K2 %4 olive pomace juice mixture	15.15.15 compound fertilizer(25/da)
5	K3 %2 olive pomace juice mixture	15.15.15 compound fertilizer(25/da)
6	K3 %3 olive pomace juice mixture	15.15.15 compound fertilizer(25/da)
7	K3 %4 olive pomace juice mixture	15.15.15 compound fertilizer(25/da)



Results

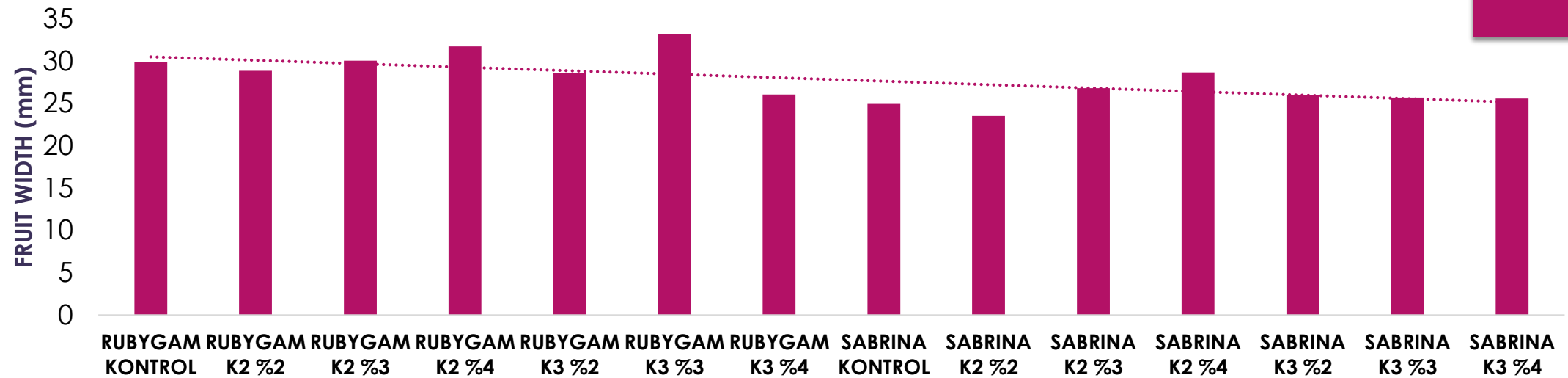


FRUIT WIDTH (MAY)



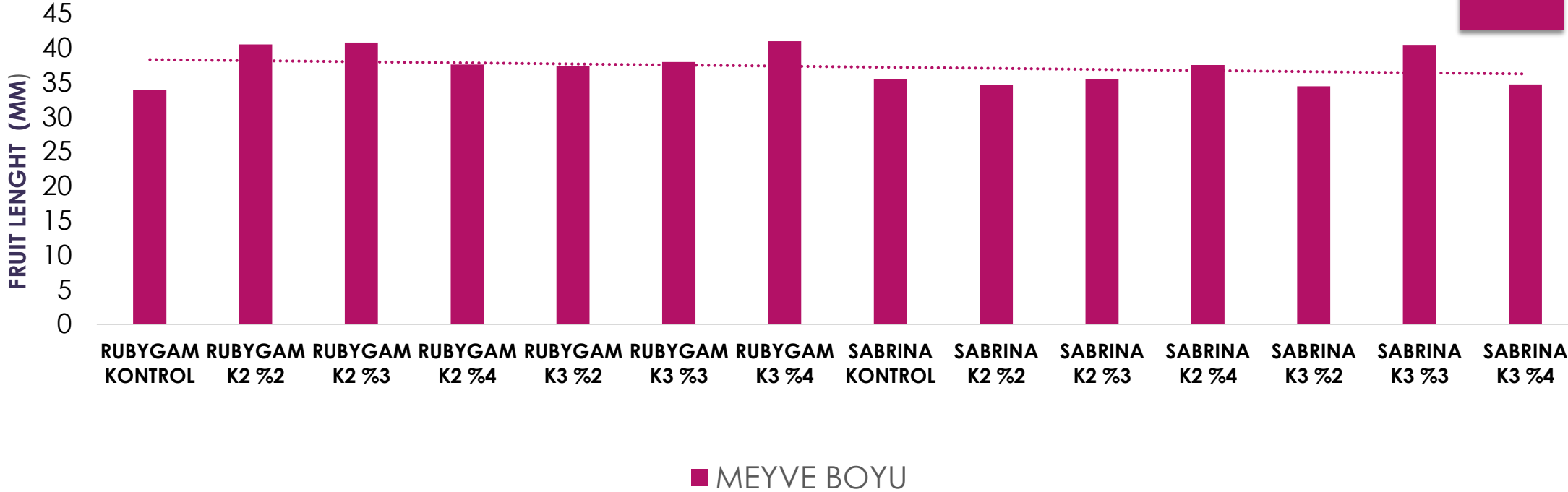
Graph 1. Fruit width change in varieties according to applications in May

FRUIT WIDTH (JUNE)



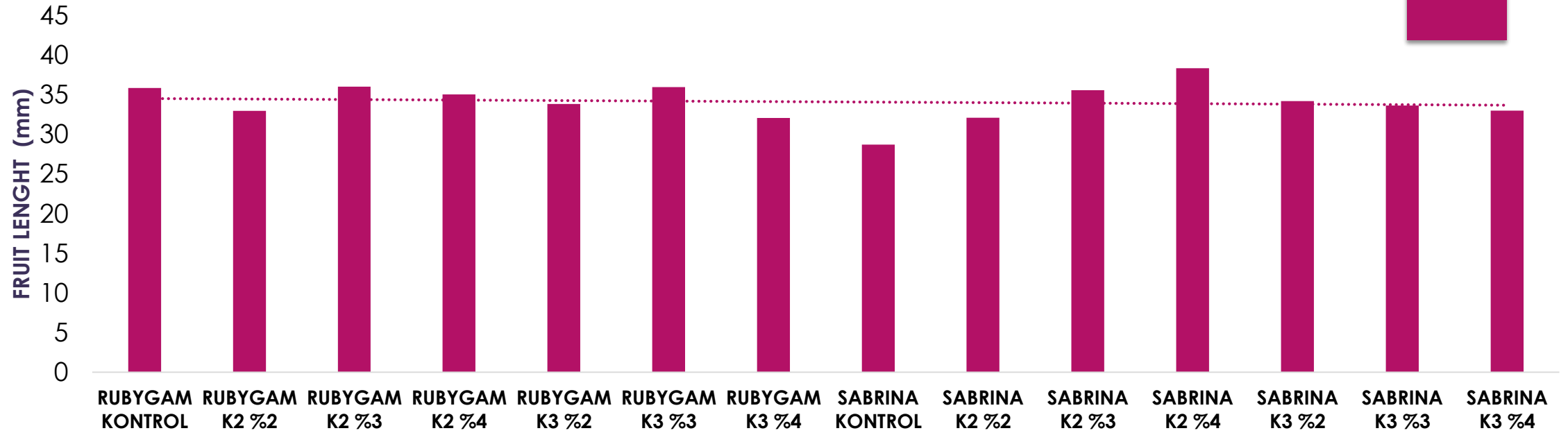
Graph 2. Fruit width development for varieties according to applications in June

FRUIT LENGHT (MAY)



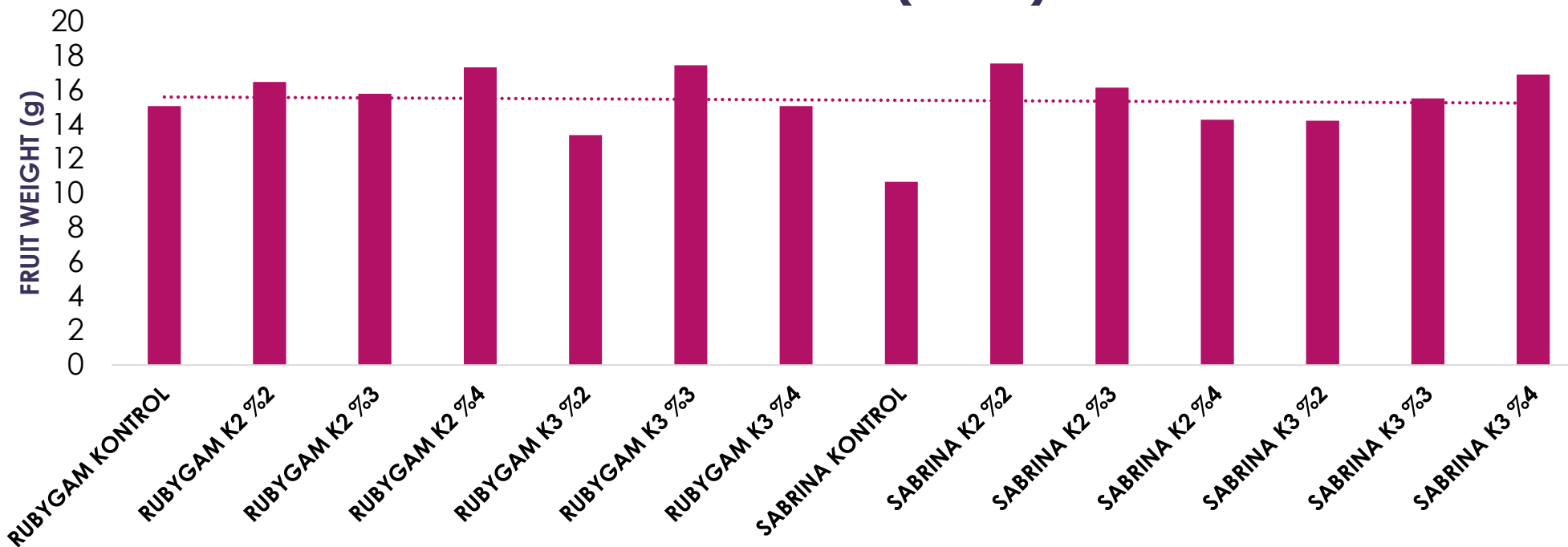
Graph 3. Fruit size development in May for varieties according to applications

FRUIT LENGTH (JUNE)

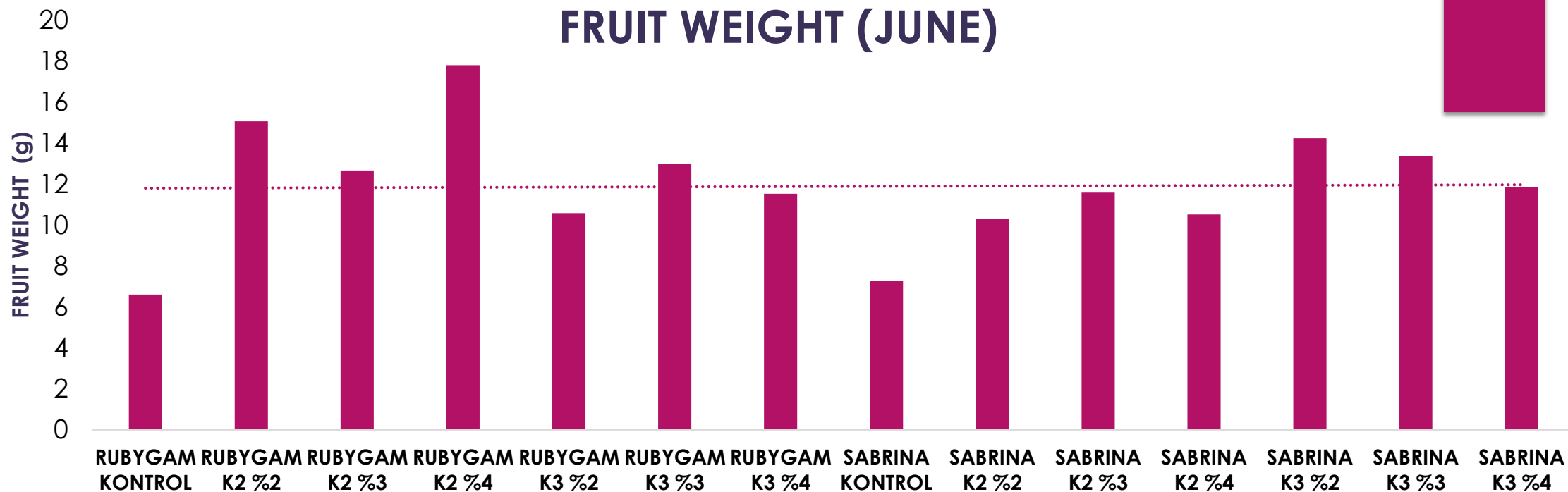


Graph 4. Fruit size development in varieties according to applications in June

FRUIT WEIGHT (MAY)

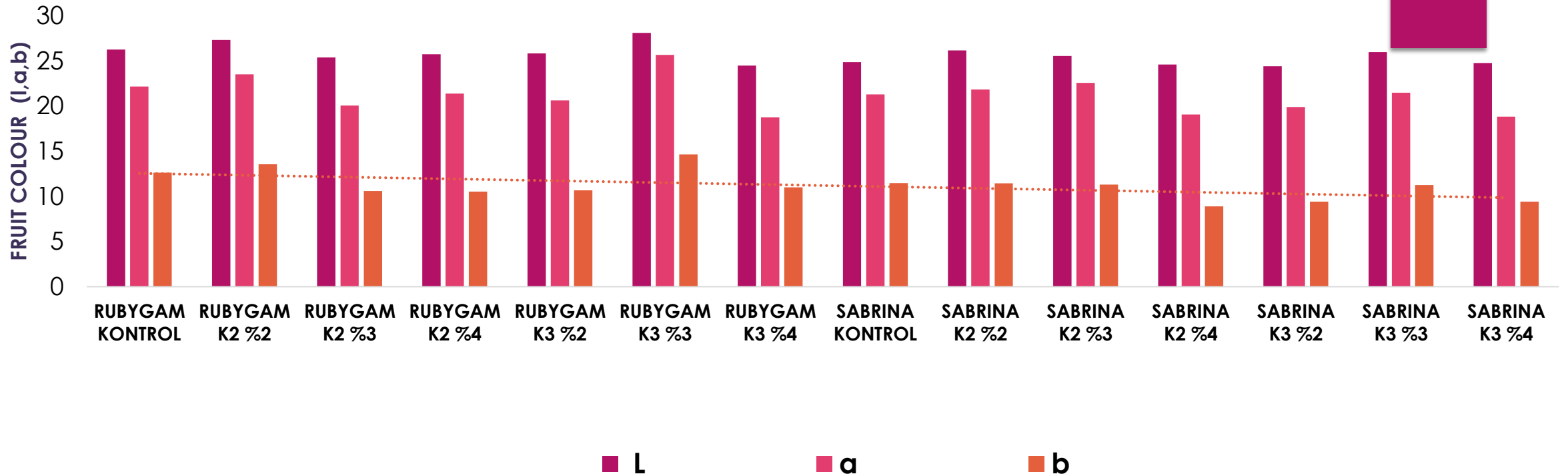


Graph 5. Fruit weight change in varieties according to applications in May



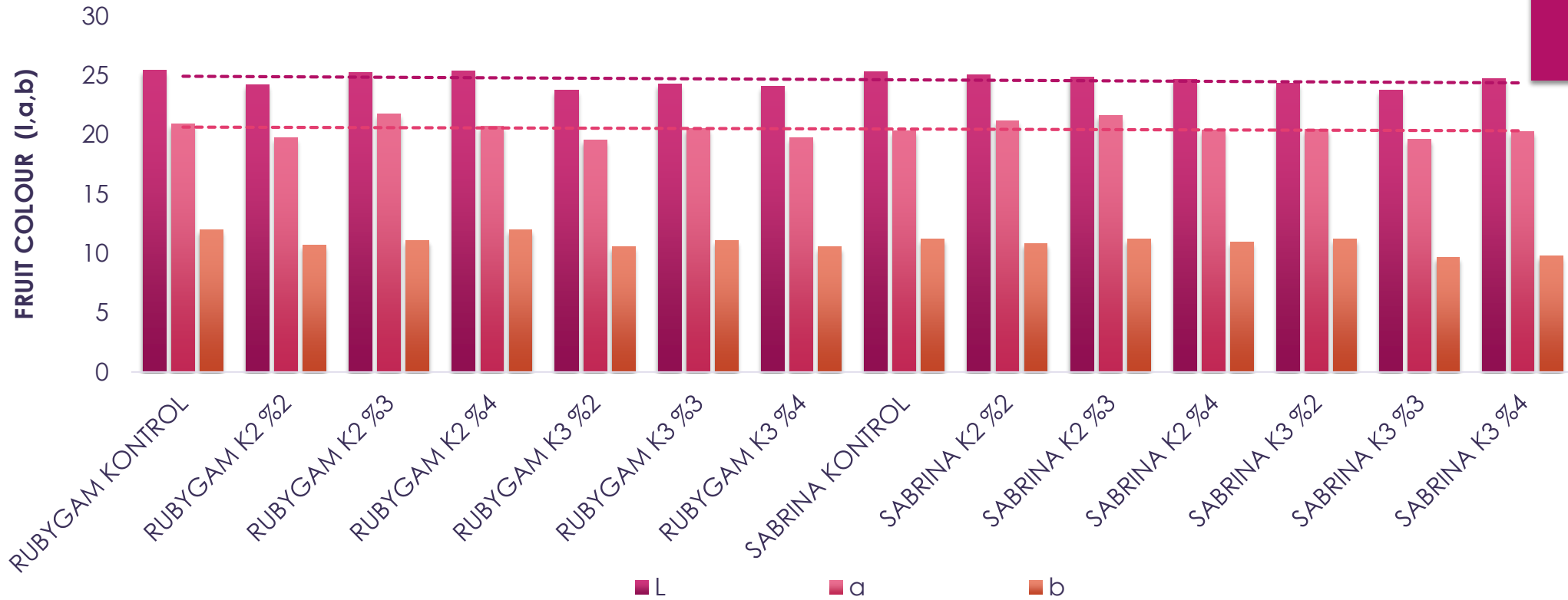
Graph 6. Fruit weight change in varieties according to applications in June

FRUIT COLOUR (MAY)



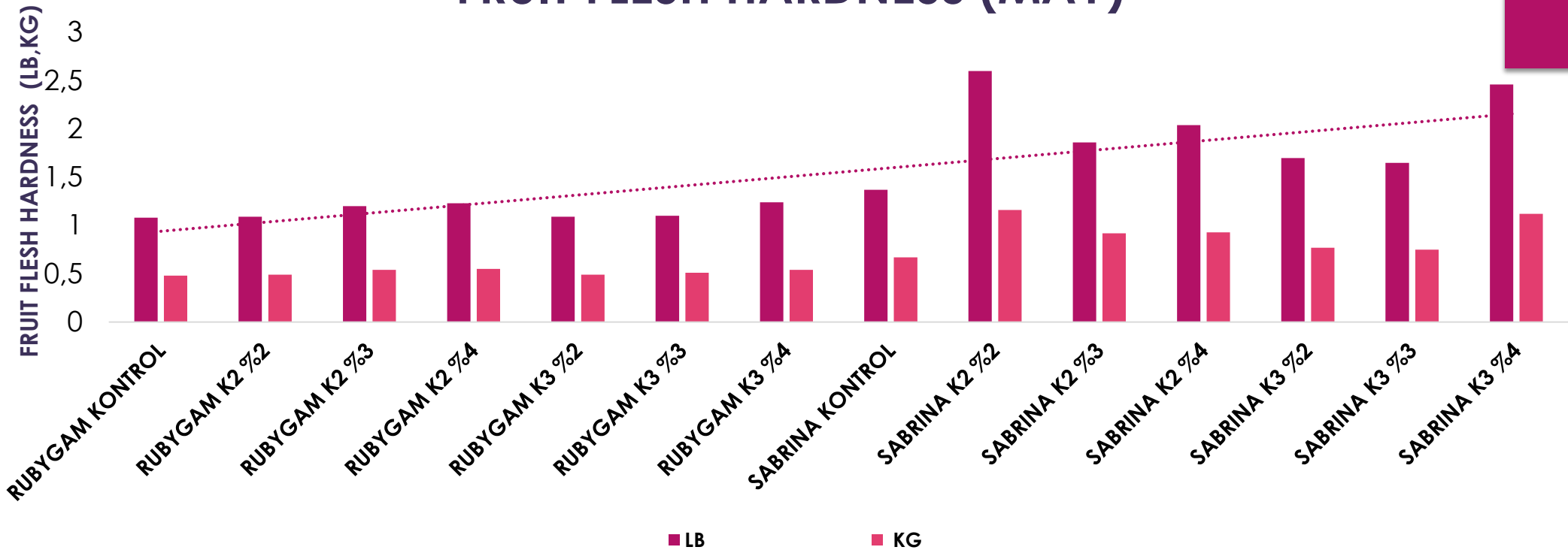
Graph 7. Fruit color change in varieties according to applications in May

FRUIT COLOUR (JUNE)



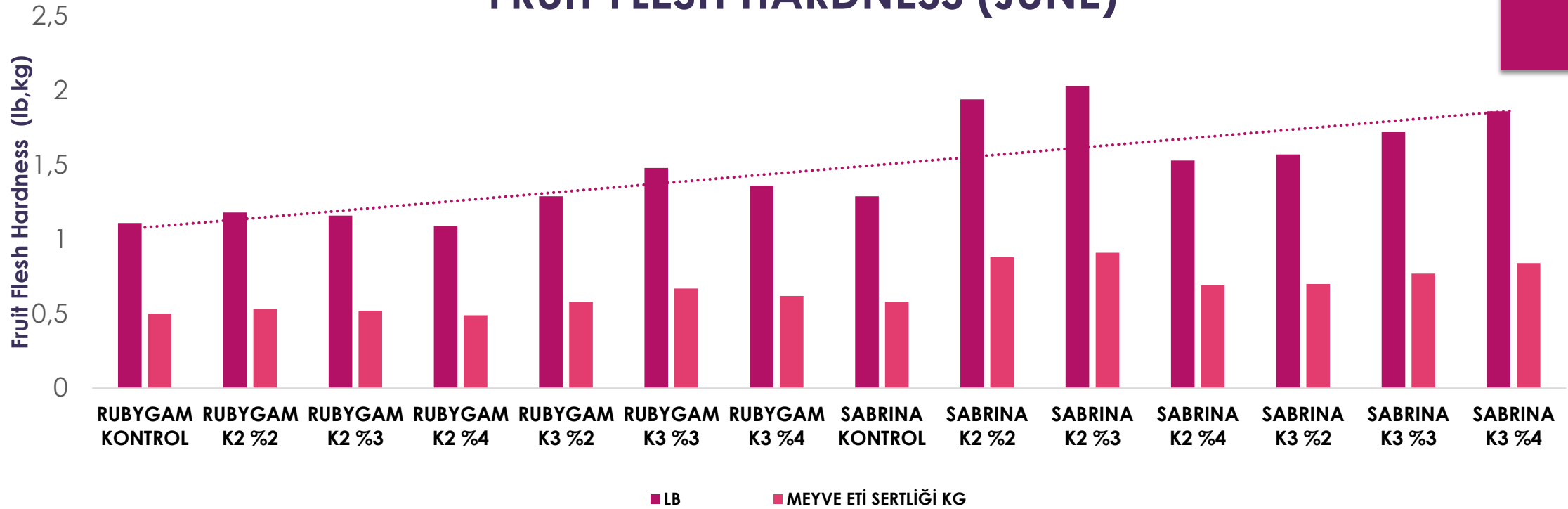
Graphs 8. Fruit color change in varieties according to applications in June

FRUIT FLESH HARDNESS (MAY)

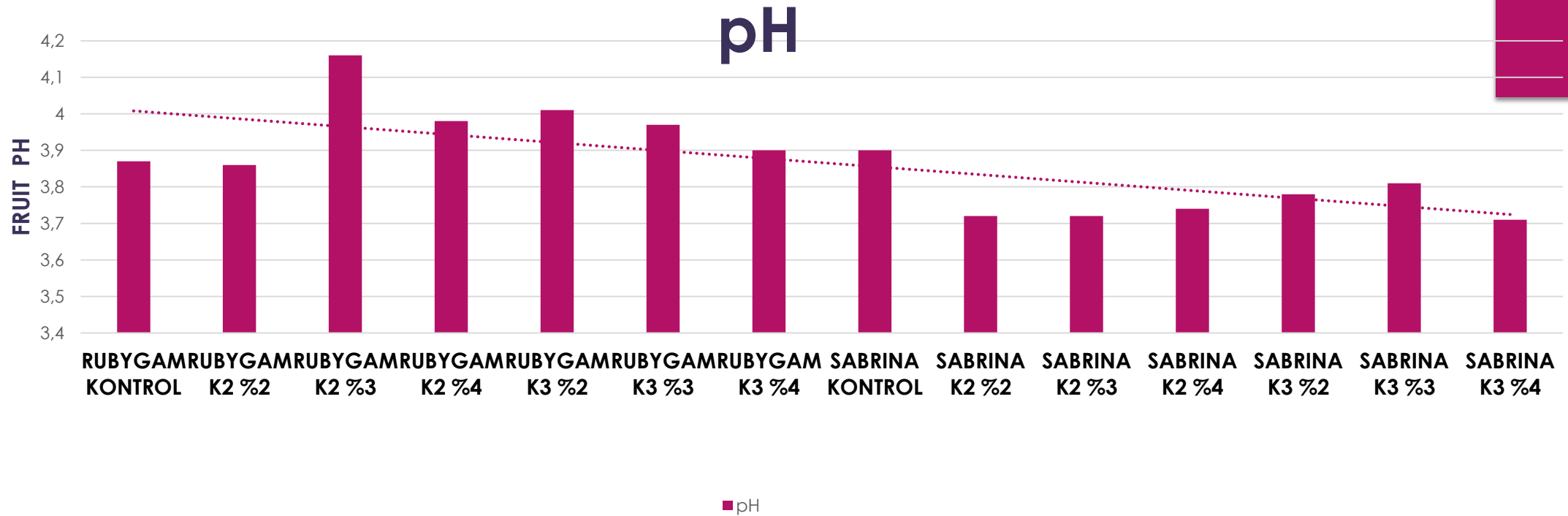


Graphs 9. Change in fruit flesh hardness in varieties according to applications in May

FRUIT FLESH HARDNESS (JUNE)

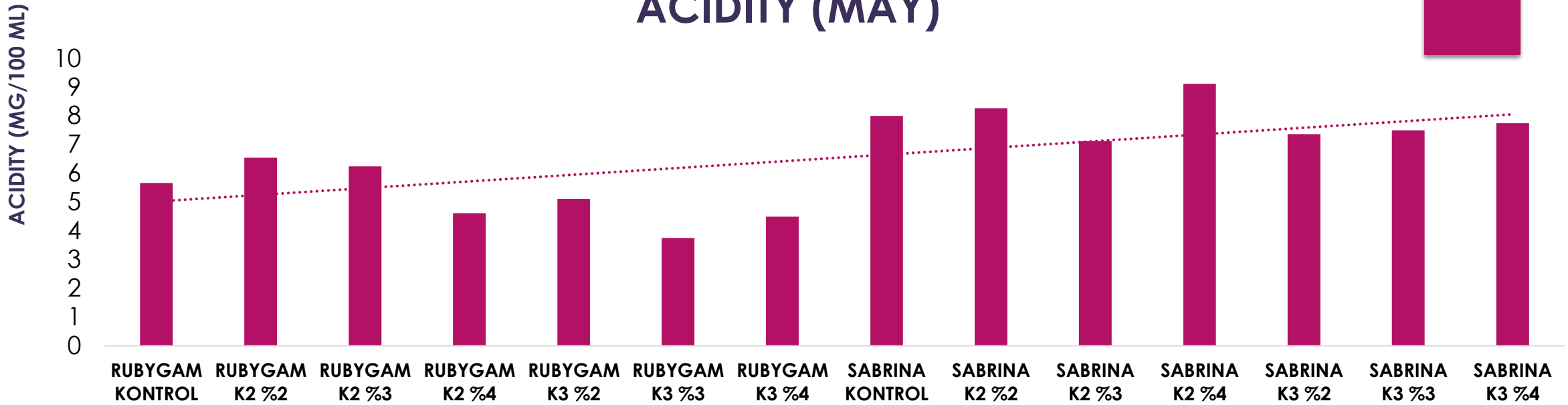


Graphs 10. Change in fruit flesh hardness in varieties according to applications in June



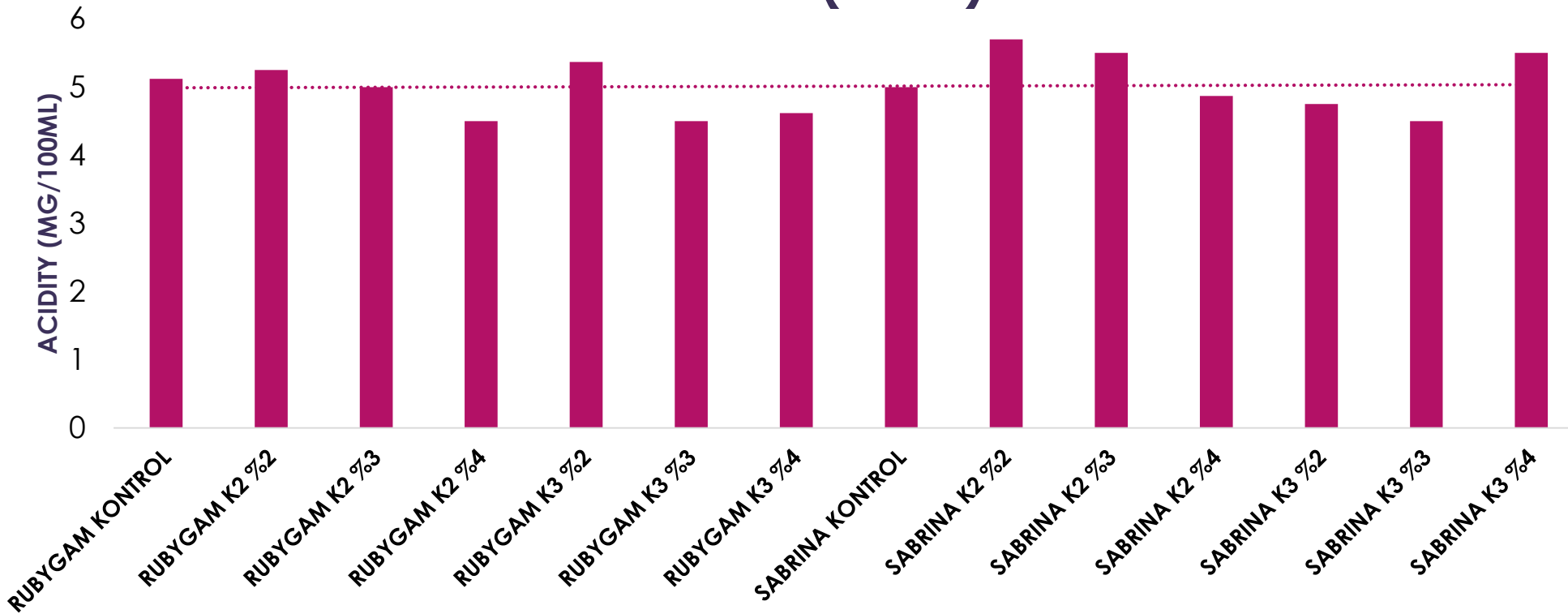
Graph 11. Fruit pH change in varieties according to applications in June

ACIDITY (MAY)



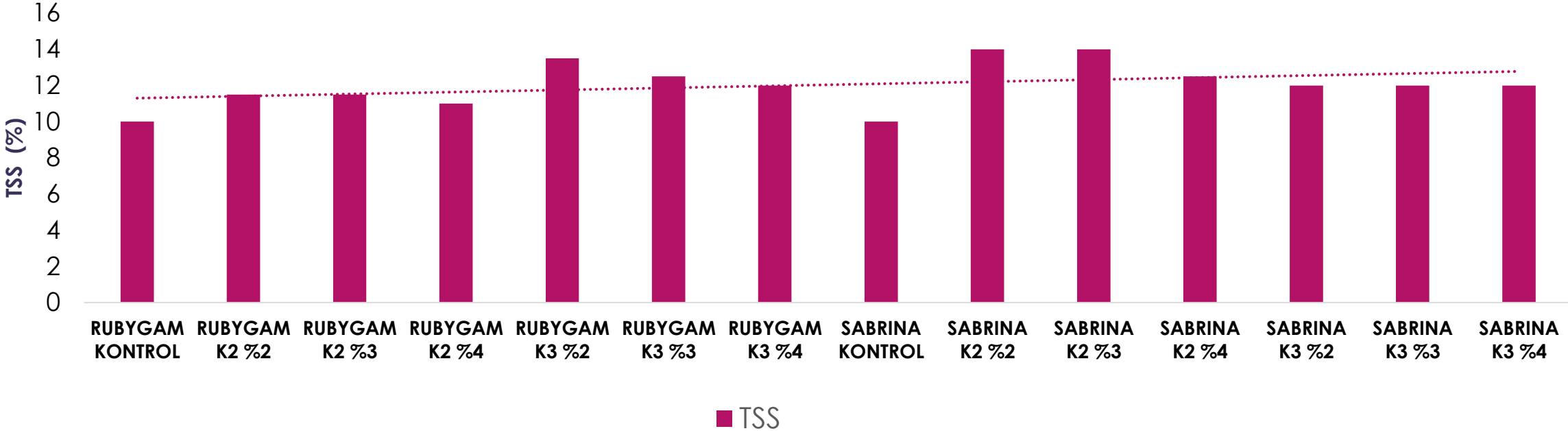
Graph 12. Acidity change in varieties according to applications in May

ACIDITY (JUNE)



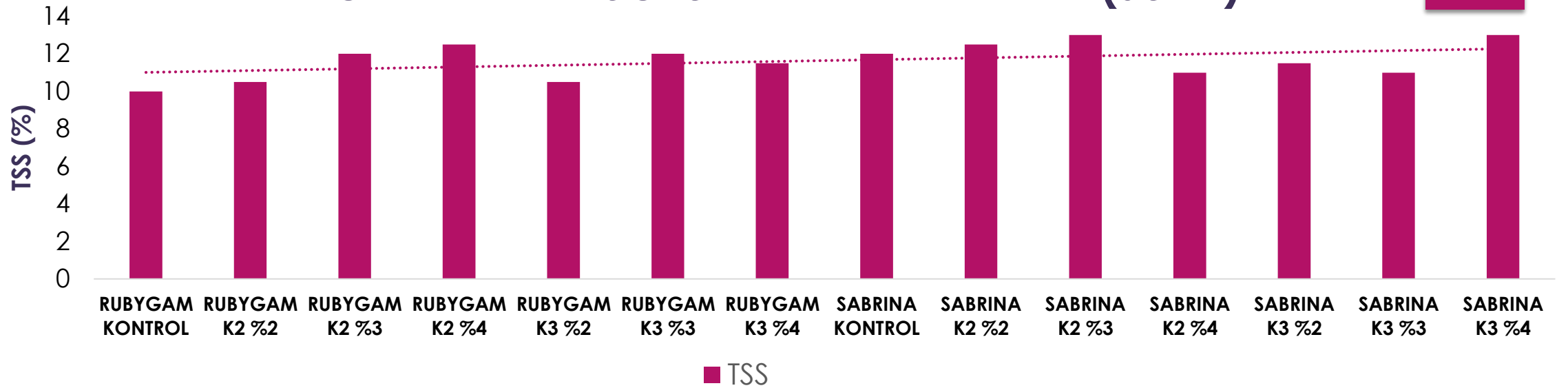
Graph 13. Acidity change in varieties according to applications in June

TOTAL WATER SOLUBLE DRY MATERIAL (MAY)



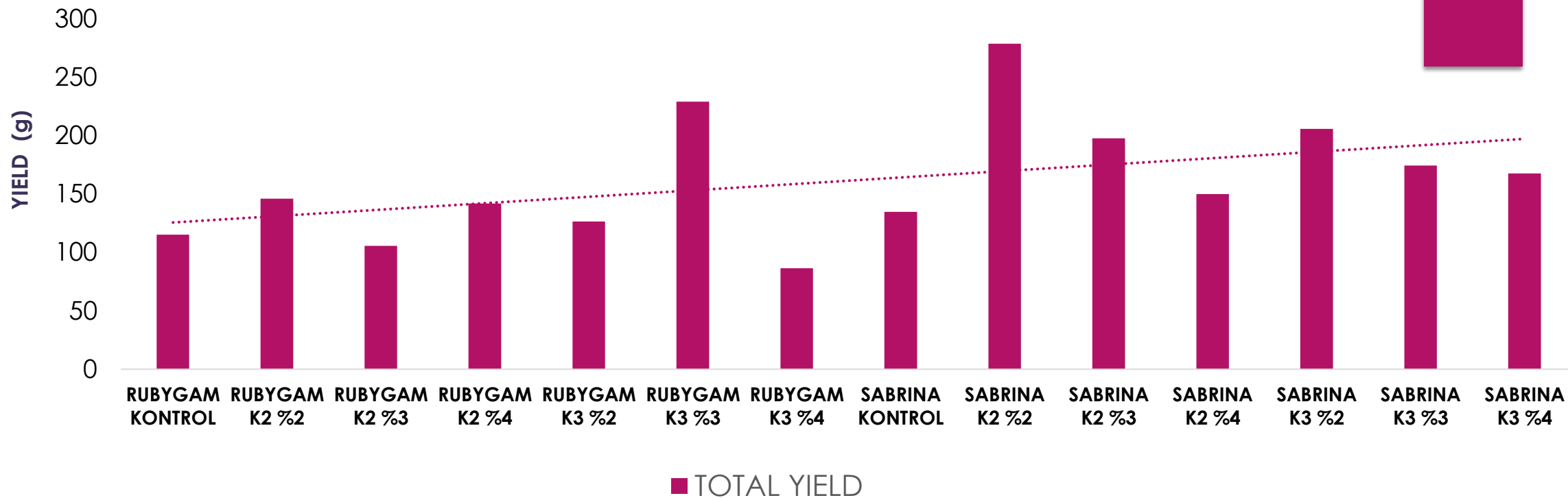
Graph 14. TSS change in varieties according to applications in May

TOTAL WATER SOLUBLE DRY MATERIAL (JUNE)



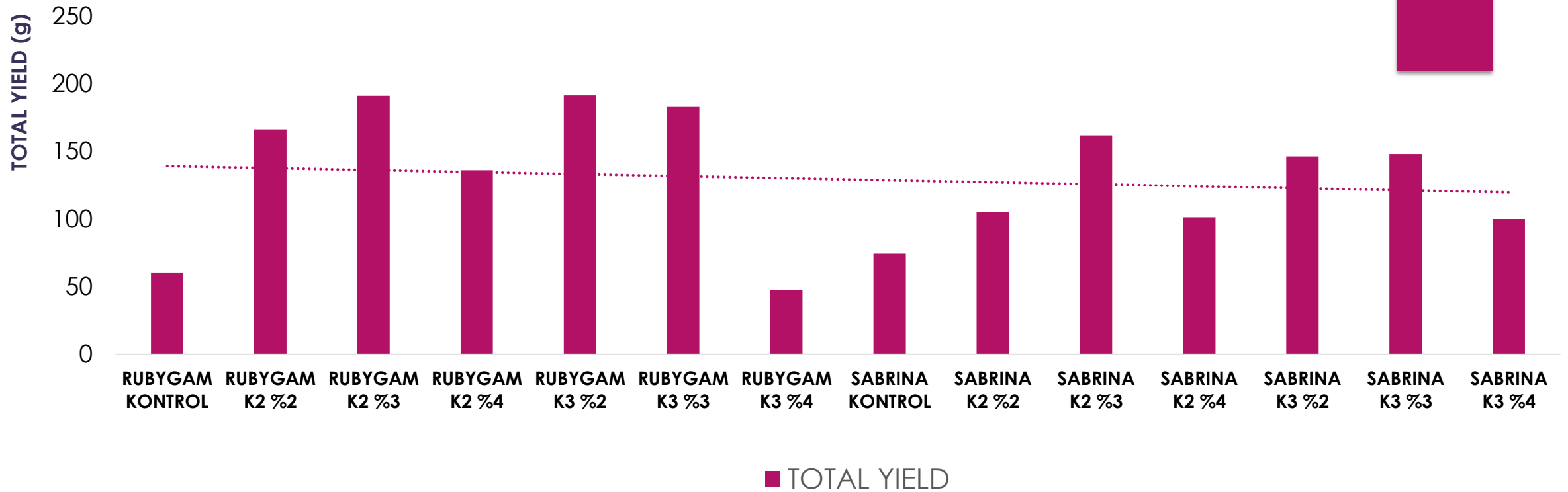
Graph 15. TSS change in varieties according to applications in June

YIELD (MAY)



Graph 16. Yield values of varieties according to applications in May

TOTAL YIELD (JUNE)



Graph 17. Yield values of varieties according to applications in June

Flower and fruit development in organic mixture containing olive pomace juice











RUBYGEM KONTROL-K2 %2-K3 %2

(1 NISAN 2020)



RUBYGEM KONTROL-K2 %3-K3 %3

(1 NISAN 2020)



RUBYGEM KONTROL-K3 %4 –K2 %4

1 NISAN 2020



SABRİNA KONTROL-K2 %2-K3 %2

(1 NİSAN 2020)



SABRİNA KONTROL-K3 %3

(1 NİSAN 2020)



SABRINA KONTROL-K2 %4- K3%4

(1 NİSAN 2020)





Conclusion

- According to the results of this research conducted under the conditions of Sultanhisar district of Aydın province;
 1. The doses with the best yield and quality were determined to be K2 2% and K3 3% doses of olive pomace juice.
 2. As a result of the application of organic liquid containing olive pomace, earliness was achieved in Rubygem variety compared to Sabrina variety, while the yield of Rubygem variety in June was higher than Sabrina.
 3. When the doses of olive pomace juice applied were evaluated, it was generally determined that K2 2% and K3 3% were the most appropriate doses.

Thanks





**İstersek ,
Doğayı Kirletmeden de
Üretebiliriz...**

**If We Want,
We Can Produce
Without Polluting Nature....**

