

Cropping systems and field margin vegetation on bean aphids and their natural enemies abundance in dolichos bean (*Lablab purpureus* L.) in Nakuru County

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Introduction

- Dolichos bean (*Lablab purpureus* L.) is locally known as 'Njahi' underutilized and less cultivated crop
- It's a potential legume for sustainable agriculture in dryland ecosystems (Cullis and Kunert 2017)
- *Aphis spp.* is important pest limiting production and accounts for 39-90% yield loss (Abate *et al.*, 2000)
- Management of bean aphids in dolichos is mainly by use of pesticides which have limitations (Hajek and Eilenberg 2018)
- Experiment was conducted to determine the effect of maize-dolichos bean intercropping on bean aphids and their natural enemies under field margin vegetation

Materials and methods

- Field experiments in Njoro and Rongai farmers fields
- 2 x 2 RCBD replicated eight times
- Treatments; dolichos monocrop, dolichos-maize intercrop, high plant species vegetation and low plant
- Data was collected on Aphid incidence(%), severity & abundance using (Mkenda *et al.*, 2015)
- Natural enemy population monitored using pantraps, sticky traps and sweepnet
- Field margin vegetation data using 1x1m quadrat



Fig 1. showing natural enemies monitored in pantraps b) natural enemies monitored using yellow sticky cards

Results

Table 1. Natural enemies abundance across the location in the cropping Systems

Group	Njoro		Rongai	
	Monocrop	Intererop	Monocrop	Intererop
Braconidae	1.42±0.09	1.22±0.07	1.59±0.08	1.52±0.07
Ichneumonidae	0.94±0.05	0.94±0.06	1.10±0.06	1.11±0.07
Chalcidoidae	0.78±0.03	0.80±0.03	0.82±0.03	0.90±0.04
Tachnidae	0.81±0.04	0.73±0.02	0.82±0.03	0.80±0.05
Syrphidae	0.74±0.02	0.72±0.01	0.79±0.05	0.72±0.01
Formicidae	1.28±0.17	1.25±0.21	1.69±0.11	1.82±0.18
Acrididae	0.96±0.05	0.89±0.04	0.82±0.03	0.89±0.04
Carabidae	1.68±0.13	1.58±0.11	1.57±0.10	1.55±0.12
Aphididae	0.97±0.08	0.85±0.05	0.92±0.06	0.82±0.05
Apidae	0.81±0.03	0.80±0.03	0.93±0.05	0.83±0.03
Pholcidae	0.82±0.03	0.88±0.04	0.99±0.06	0.94±0.06
Muscidae	3.02±0.20	2.48±0.15	3.39±0.22	2.76±0.17
Gryllidae	0.81±0.03	0.74±0.02	0.78±0.03	0.82±0.03

- 13 families recorded (formicidae, carabidae and muscidae dominating)
- 7 natural enemies family recorded

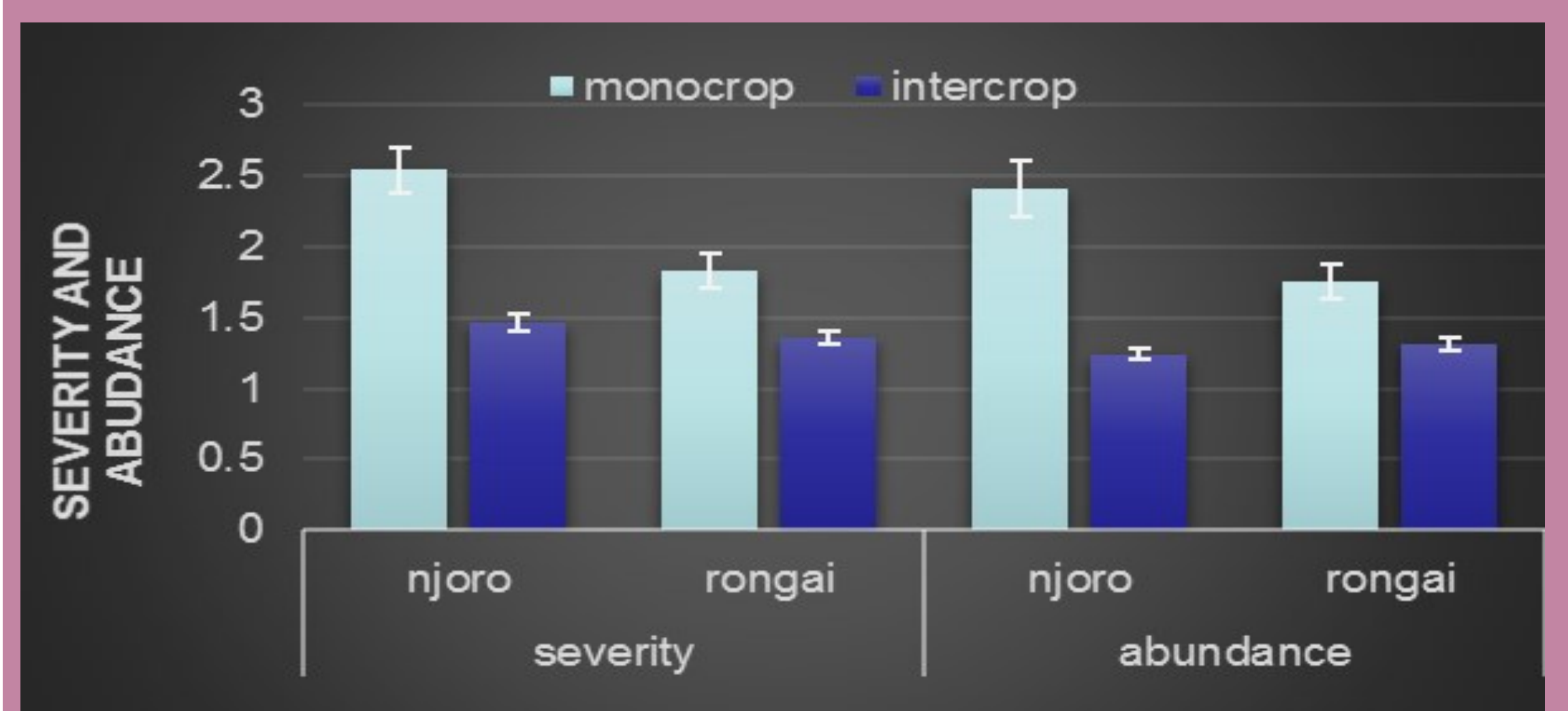


Fig 2. Effect of interaction of cropping system and aphid scoring

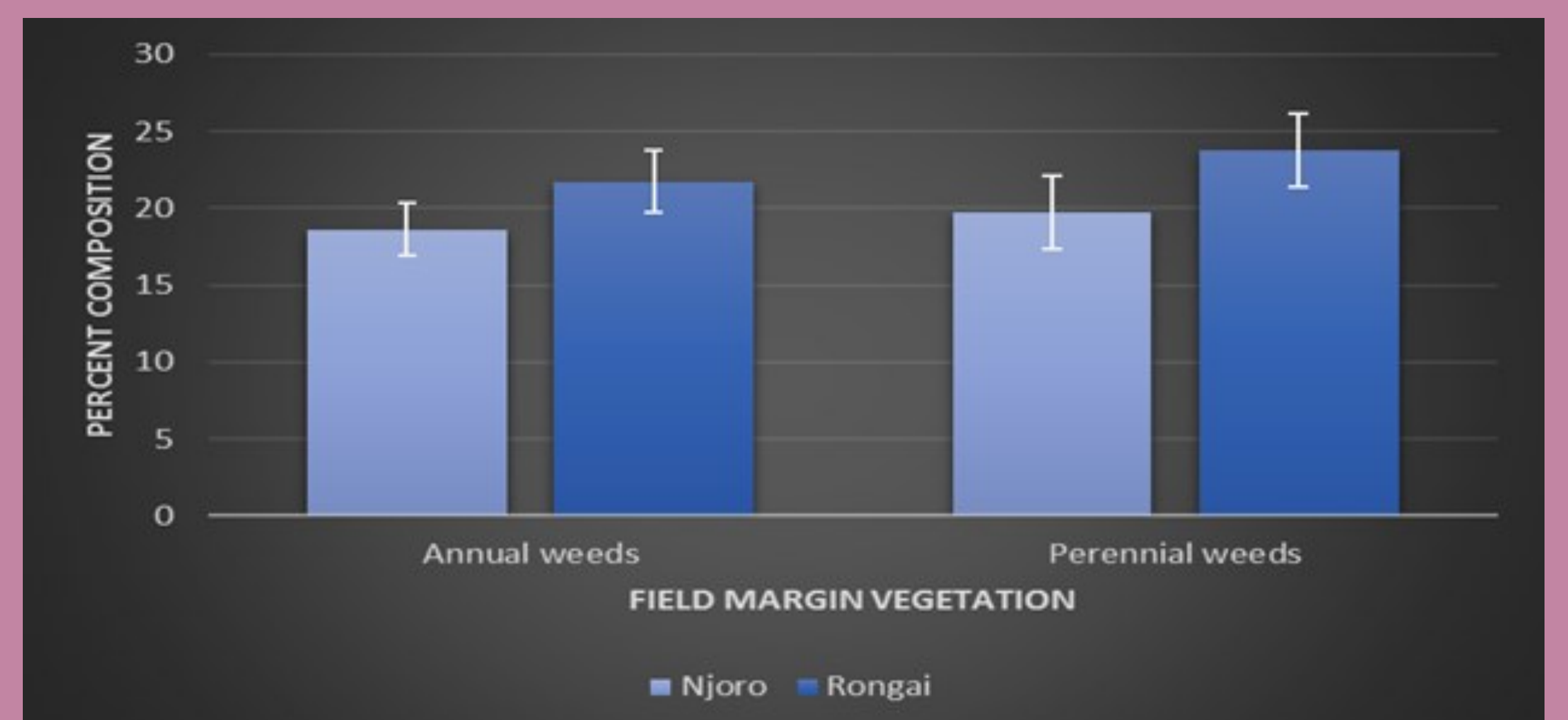


Fig 3. Field margin vegetation abundance across Njoro and Rongai

Conclusion

- Intercropping under high field margin vegetation impacts positively on management of aphids in Dolichos beans.

References

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