

How does wood chip compost perform as a peat free growing medium compared to standard materials?



Iain Tolhurst, Tolhurst Organic Partnership C.I.C.

Anja Vieweger, The Organic Research Centre



Tolhurst Organic



1. Wood chip compost
2. Wood chip compost plus Biochar
3. Klasmann Propagation Compost
4. Klasmann Propagation Compost plus Biochar

Compared in leeks and cabbage

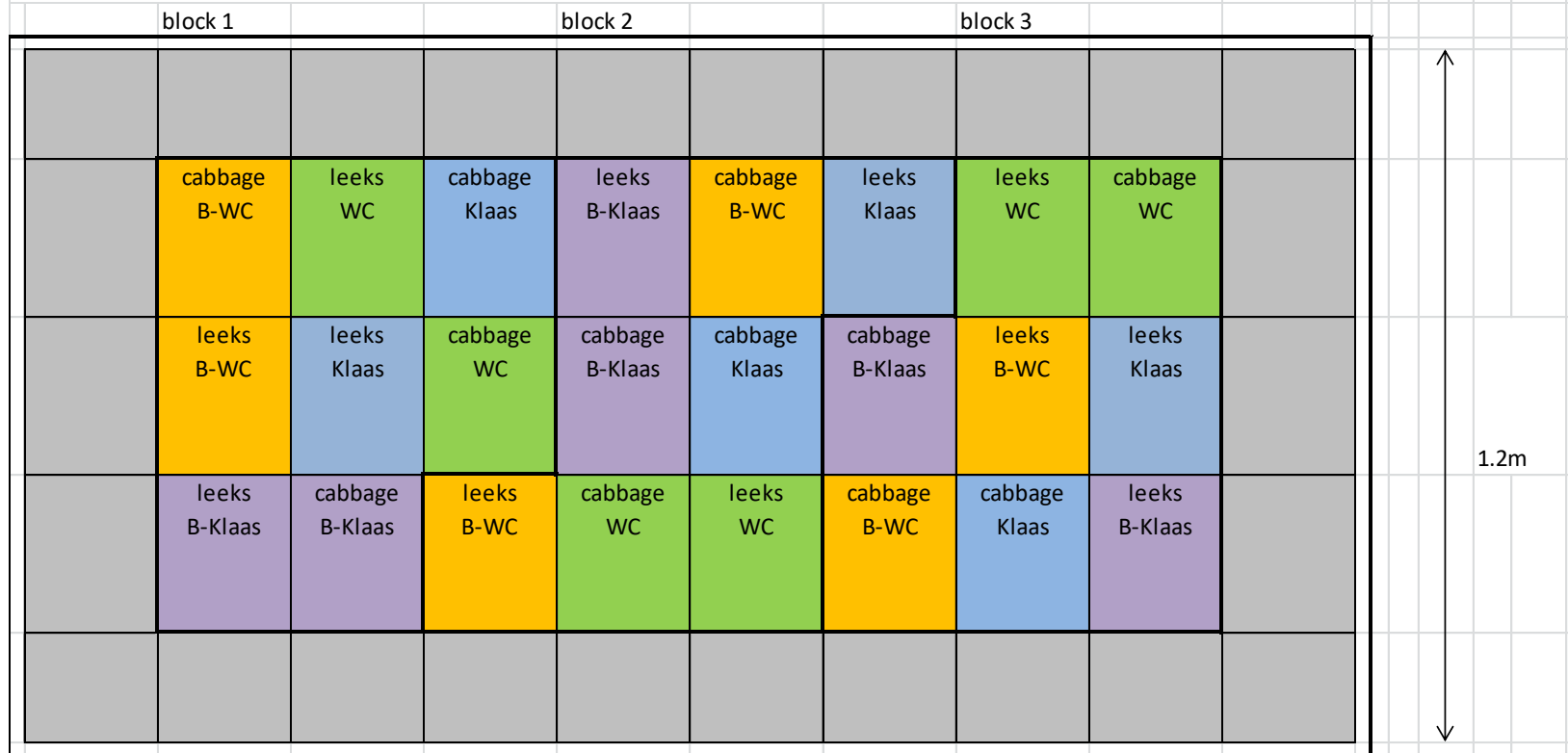


The Organic Research Centre



Transplant set-up in the greenhouse

Propagation materials comparison trial - tray set-up in greenhouse



← 3.7m →

	1 tray of transplants
	Guard row (any of the 2 crops)
	Woodchip compost
	Biochar + Woodchip compost
	Biochar + Klaasman
	Klaasman
c	cabbage
l	leeks

module trays are 37x23cm
 containing 40 modules/plants per tray
 50 trays are needed in total (24 for trial)
 trial 24 are used for monitoring and analysis
 6 trays per substrate
 arranged in 3 pseudo replicates (3 blocks)
 2 different crops are compared
 1 tray in each block and substrate for one crop
 3 trays per crop and substrate in total



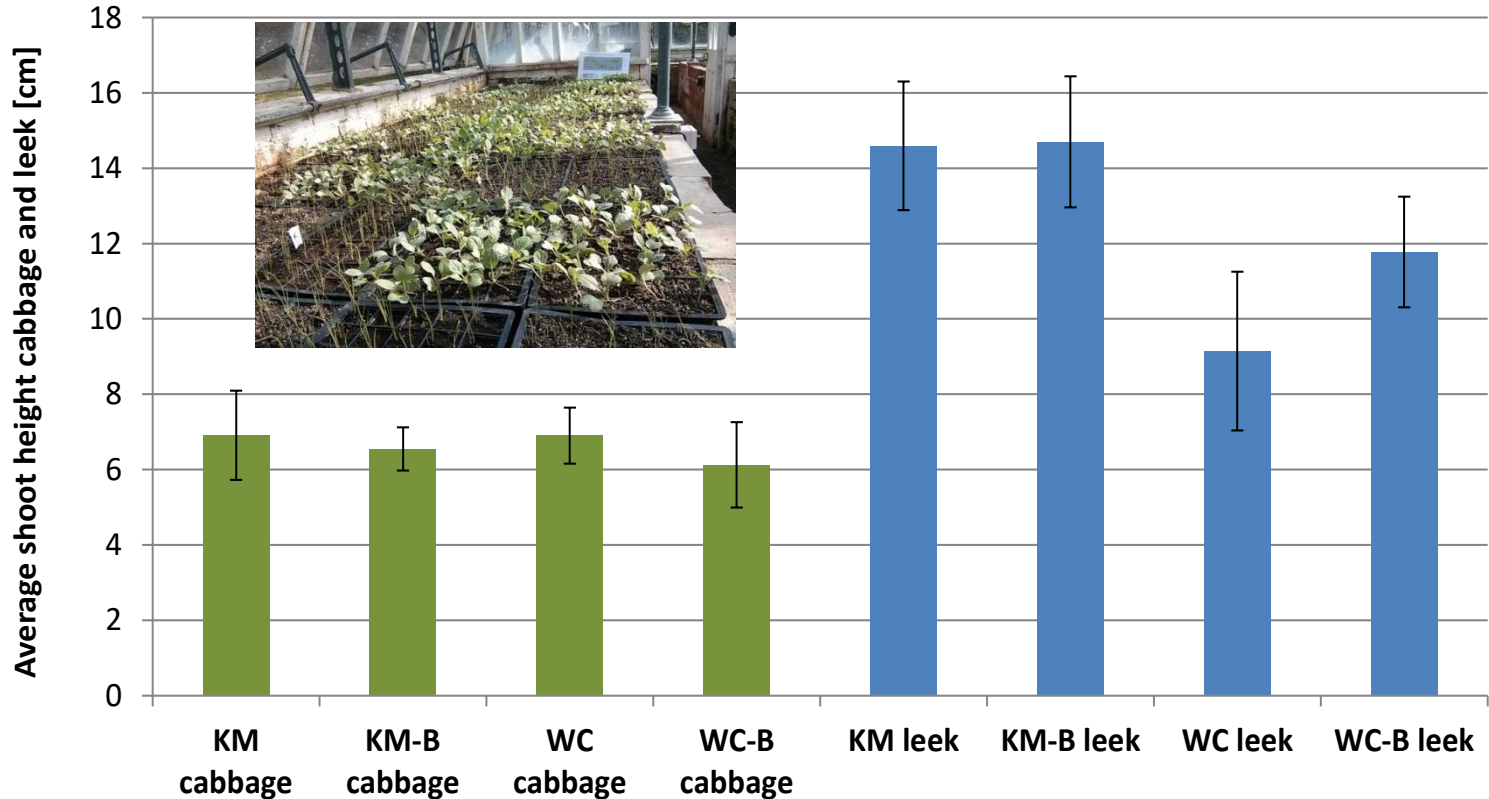
Height assessments during establishment

Average shoot height of cabbage and leek

Three weeks after pricking into different propagation materials

Cabbage (green) 14.3.2014 and leek (blue) 25.3.2014

KM - Klasmann, KM-B - Klasmann and Biochar, WC - Woodchip, WC-B Woodchip and Biochar



Following the crop until harvest



Harvest plans

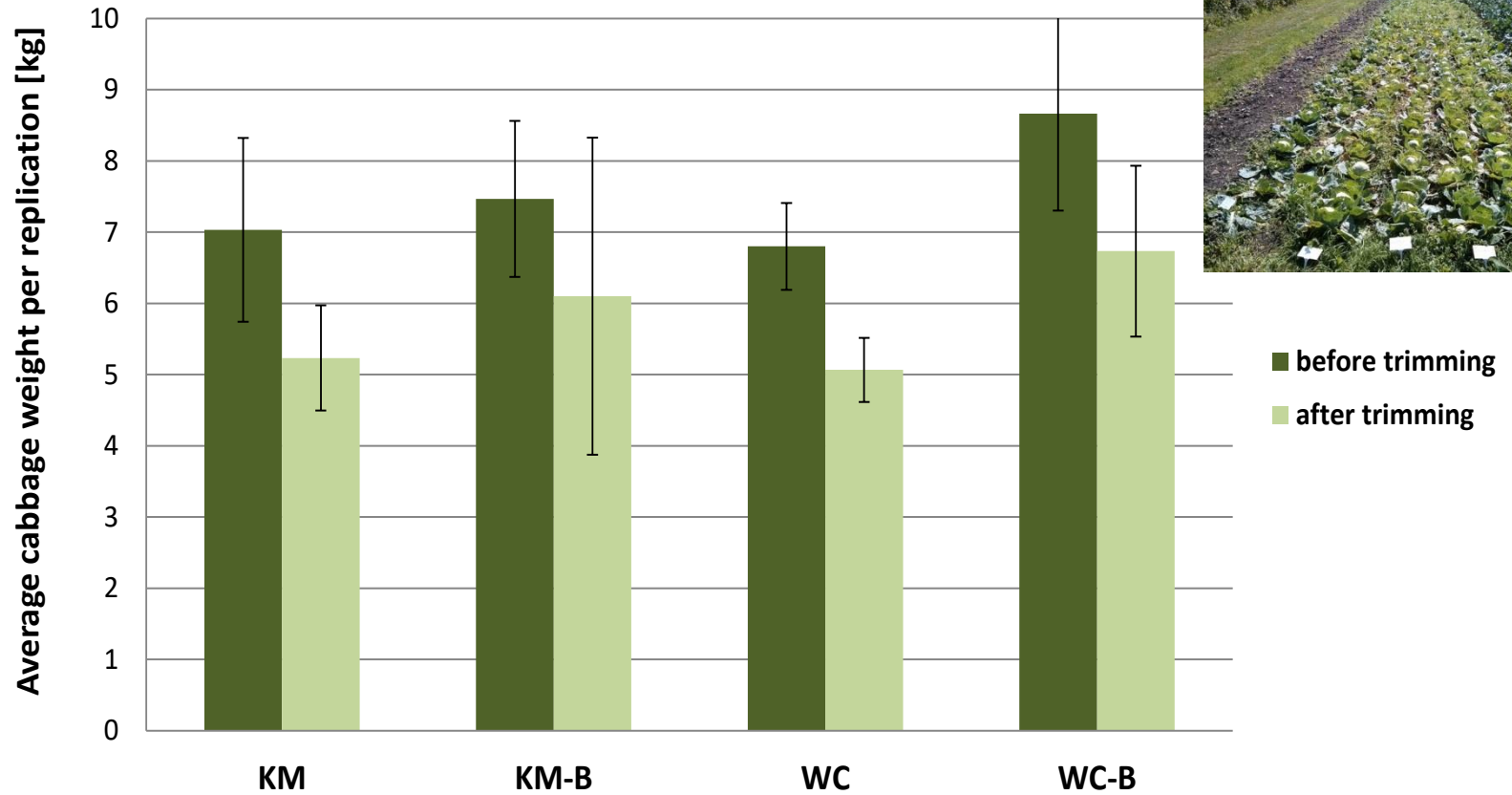
Cabbage harvest plan							
02-Jul-14							
guard rows		trial rows				guard rows	
		K	WC	BK	BWC		
path				BK-3			
		K-3			BWC-3		
			WC-3				
		K-2			BWC-2		
			WC-2				
				BK-2			
		K-1				BWC-1	
			WC-1				
				BK-1			
		K	WC	BK	BWC		

Cabbage harvest

Average cabbage weight harvested per replication 2. July 2014

Before trimming (dark green) and after trimming (light green)

KM - Klasmann, KM-B - Klasmann and Biochar, WC - Woodchip, WC-B - Woodchip and Biochar

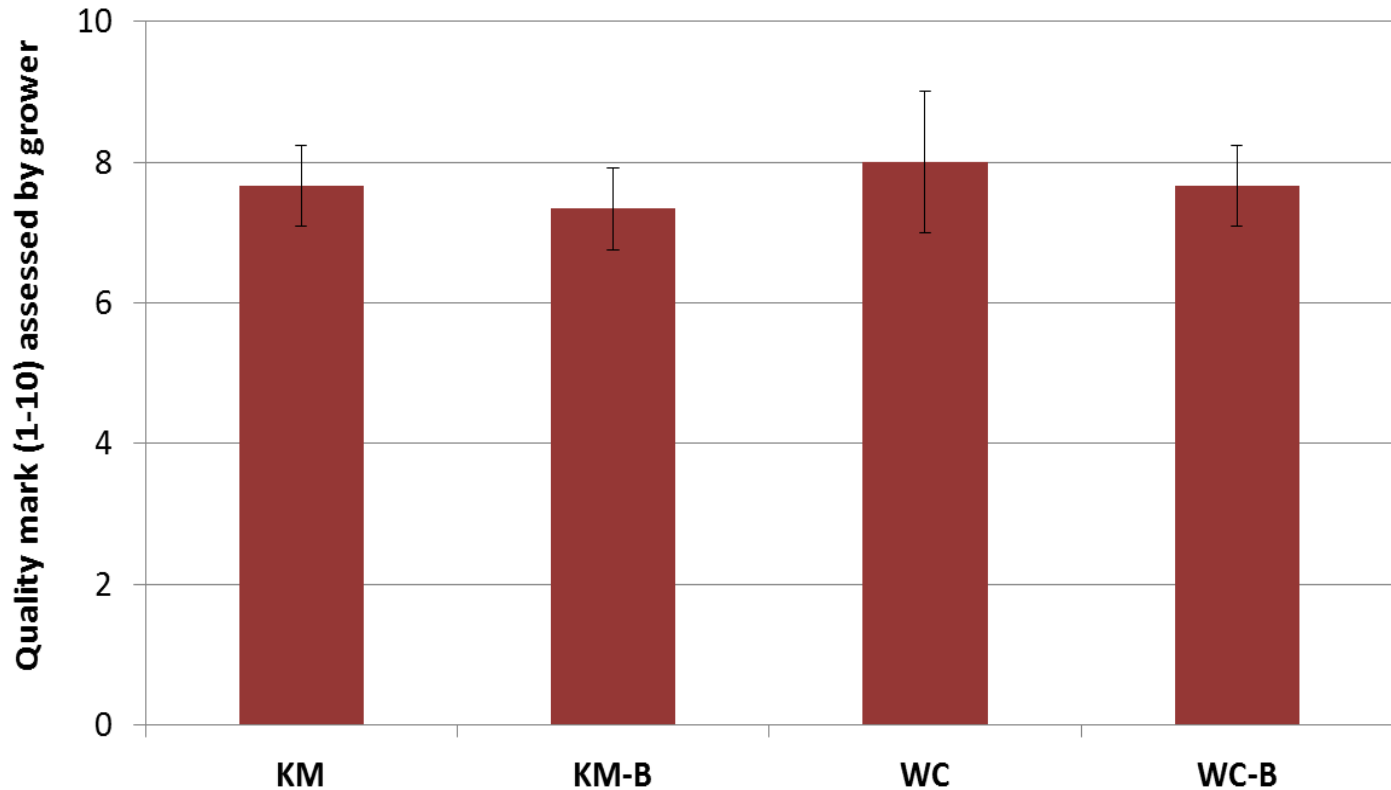


Cabbage harvest

Quality assessment of harvested cabbages per replication

Evaluated by grower per replication during harvest

KM - Klasmann, KM-B - Klasmann and Biochar, WC - Woodchip, WC-B - Woodchip and Biochar

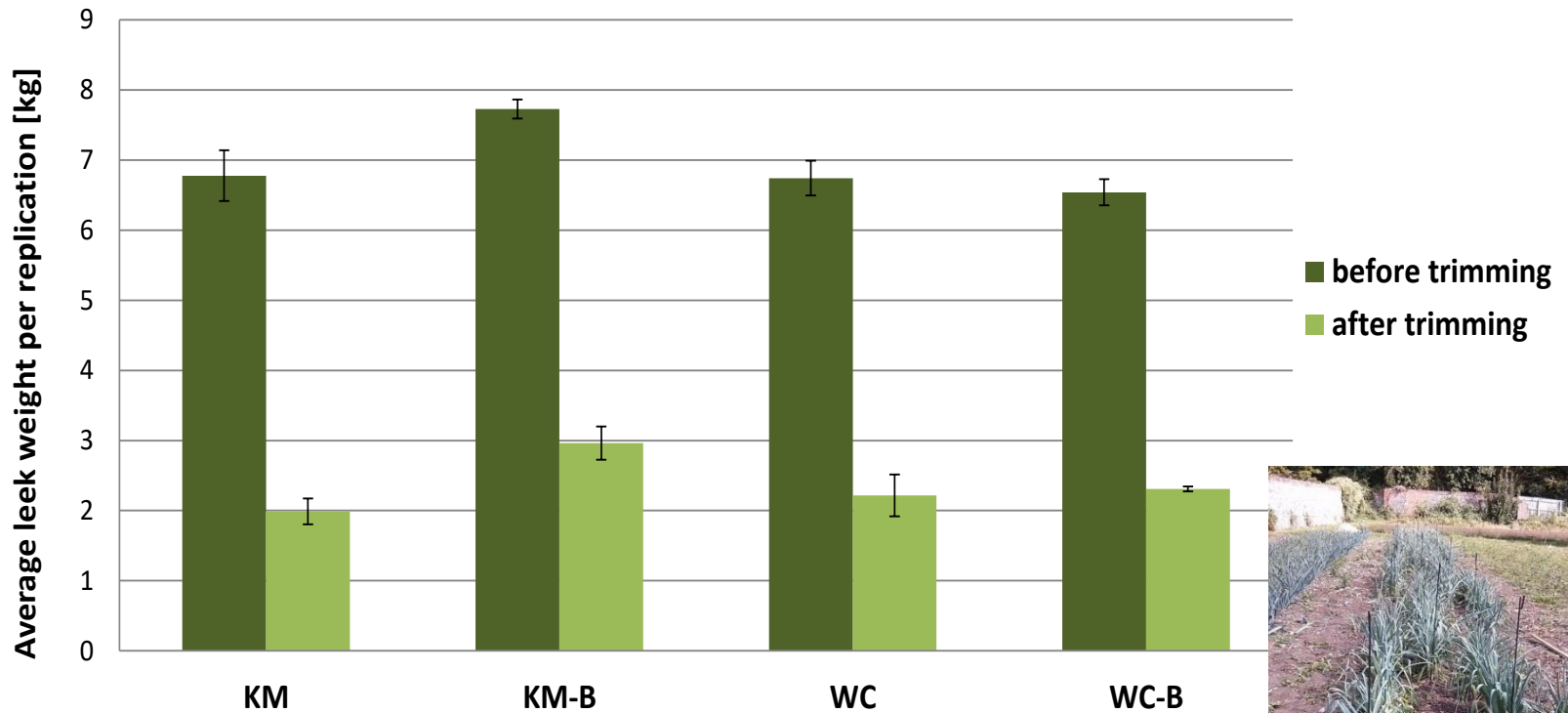


Leek harvest

Average leek weight harvested per replication 20. August 2014

Before trimming (dark green) and after trimming (light green)

KM - Klasmann, KM-B - Klasmann and Biochar, WC - Woodchip, WC-B - Woodchip and Biochar



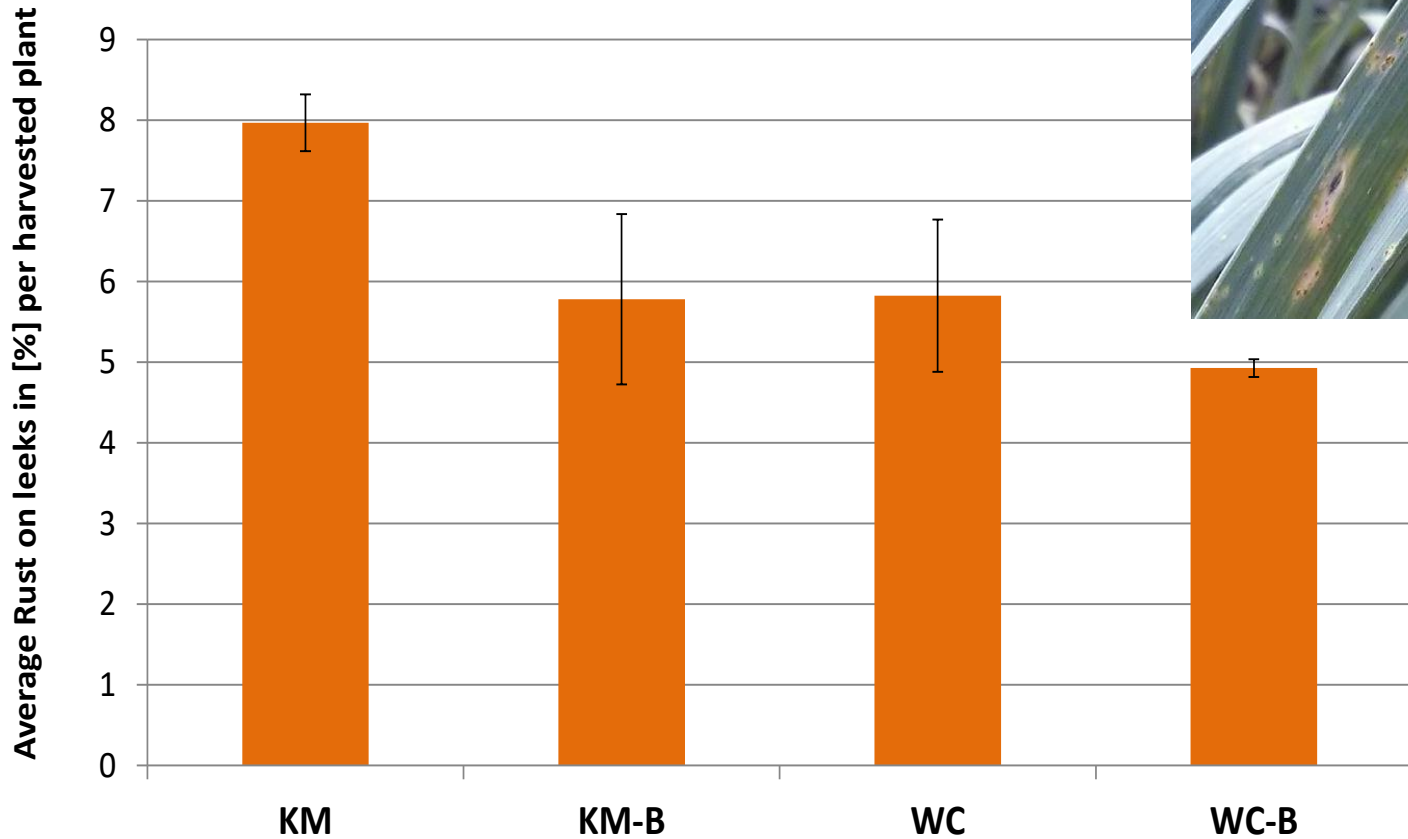
Leek harvest

Average infestation of leek plants with Rust (*Puccinia allii*)

Assessed during harvest, 20. August 2014

KM - Klasmann, KM-B - Klasmann and Biochar, WC - Woodchip, WC-B Woodchip and Biochar

[statistically significant result ($F_{3,272}=4.2097$, $p=0.006226$) Tukey



Conclusions

- Clear indications that woodchip compost can be successfully used to replace a commercial growing substrate containing peat.
- Growth and health (and even yield) of the assessed crops were comparable, with only small differences in weight and quality.
- But, the woodchip mixture requires a slightly different treatment with regards to water and nutrient management, with adapted management strategies, similar (and possibly better) results can be achieved.



The Organic Research Centre

Thank you

