

The background of the slide is a close-up photograph of two brown, textured weevils with long snouts, identified as Bothynoderes punctiventris, resting on a green leaf. The weevils are positioned on either side of the central text. The text is in a white serif font, with the species name in italics.

Aggregation attractant of *Bothynoderes punctiventris* Germar

Tóth¹, Miklós, — Sivčev², Ivan, — Ujváry³, István

¹ Plant Protection Institute, HAS, Budapest, Hungary

² Institute for Plant Protection & Environment, Belgrade, SCG

³ Central Chemistry Institute, HAS, Budapest, Hungary

First indication that grandlure components may attract the sugarbeet weevil:

Preliminary field screening test of some weevil pheromone components (in sticky delta traps at soil surface)

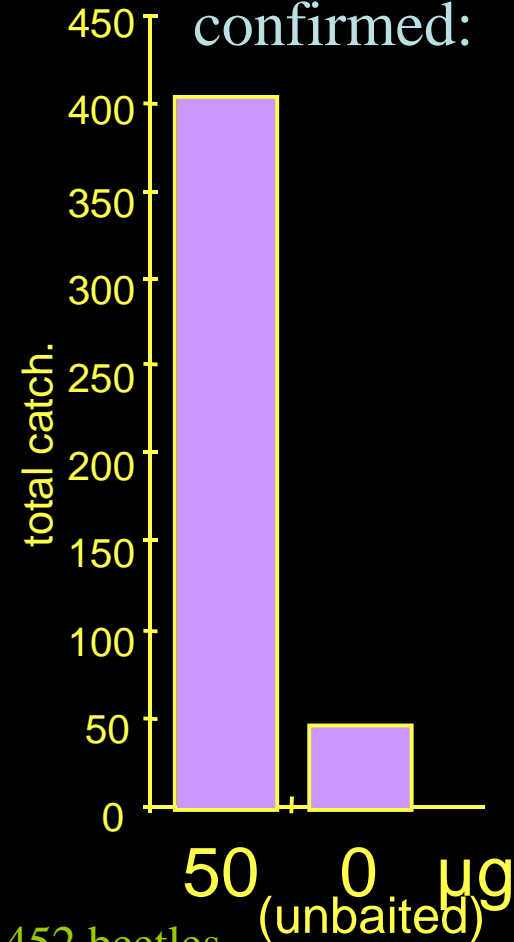
Grandlures				4-methyl 3,5heptane- dione	Bothynod. punctiv. total catch
I.	II.	III /IV.			
+	-	-	-	0	
-	+	-	-	0	
-	-	+	-	3	
+	+	+	-	15	
+	+	-	-	1	
-	-	-	+	0	

Agárd, Hungary, 1995 April 20 - May 23 ;

Pusztaszabolcs, Hungary,
1996 May 23 - June 13.

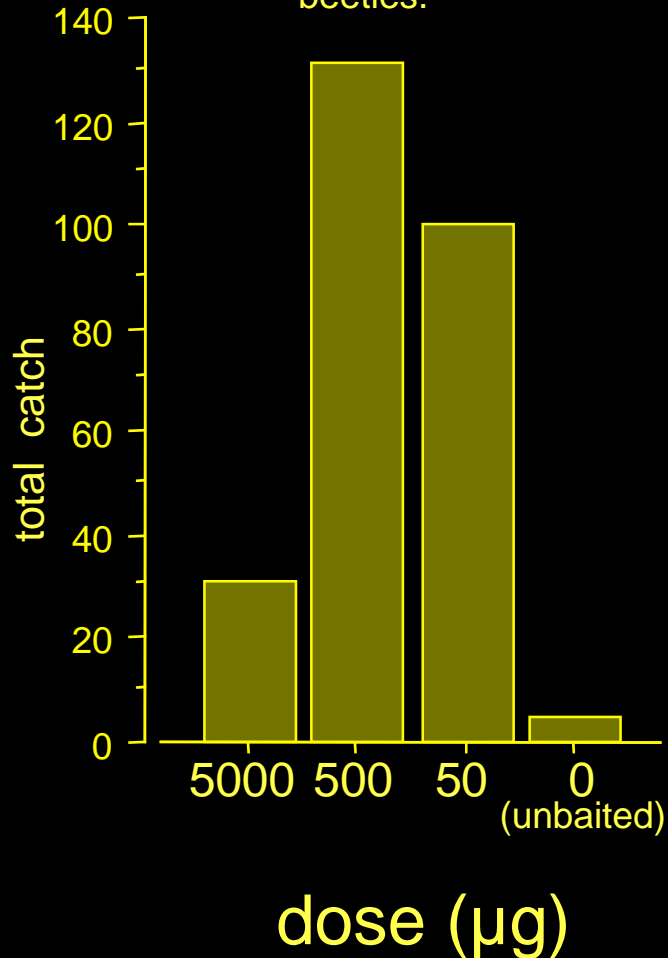
1997 Total caught in test: 452 beetles.

Attraction of
the ternary
Grandlure
mixture
confirmed:

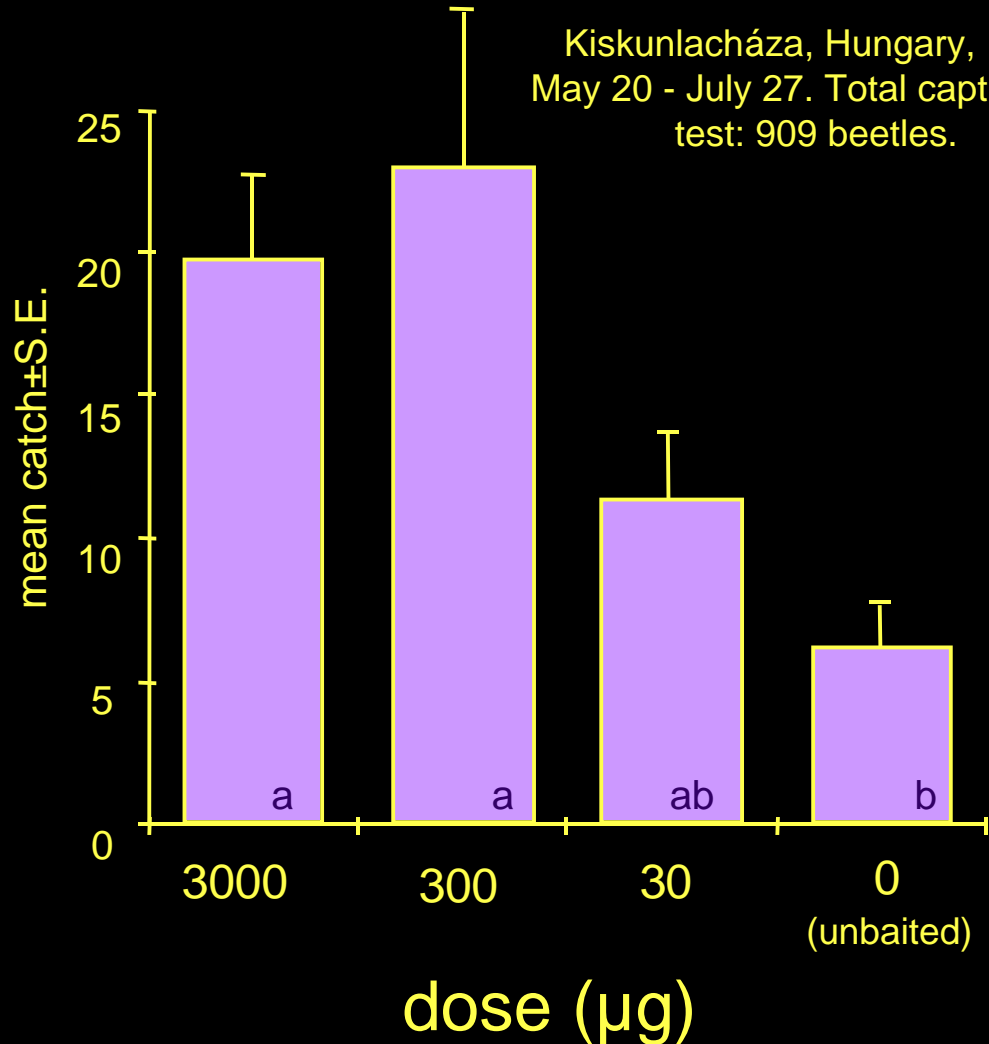


Dose/response of Grandlure mixture give additional confirmation of attractive activity for the sugarbeet weevil :

Agárd, Hungary, 1995
May 23 - 29. Total captured in test: 267 beetles.

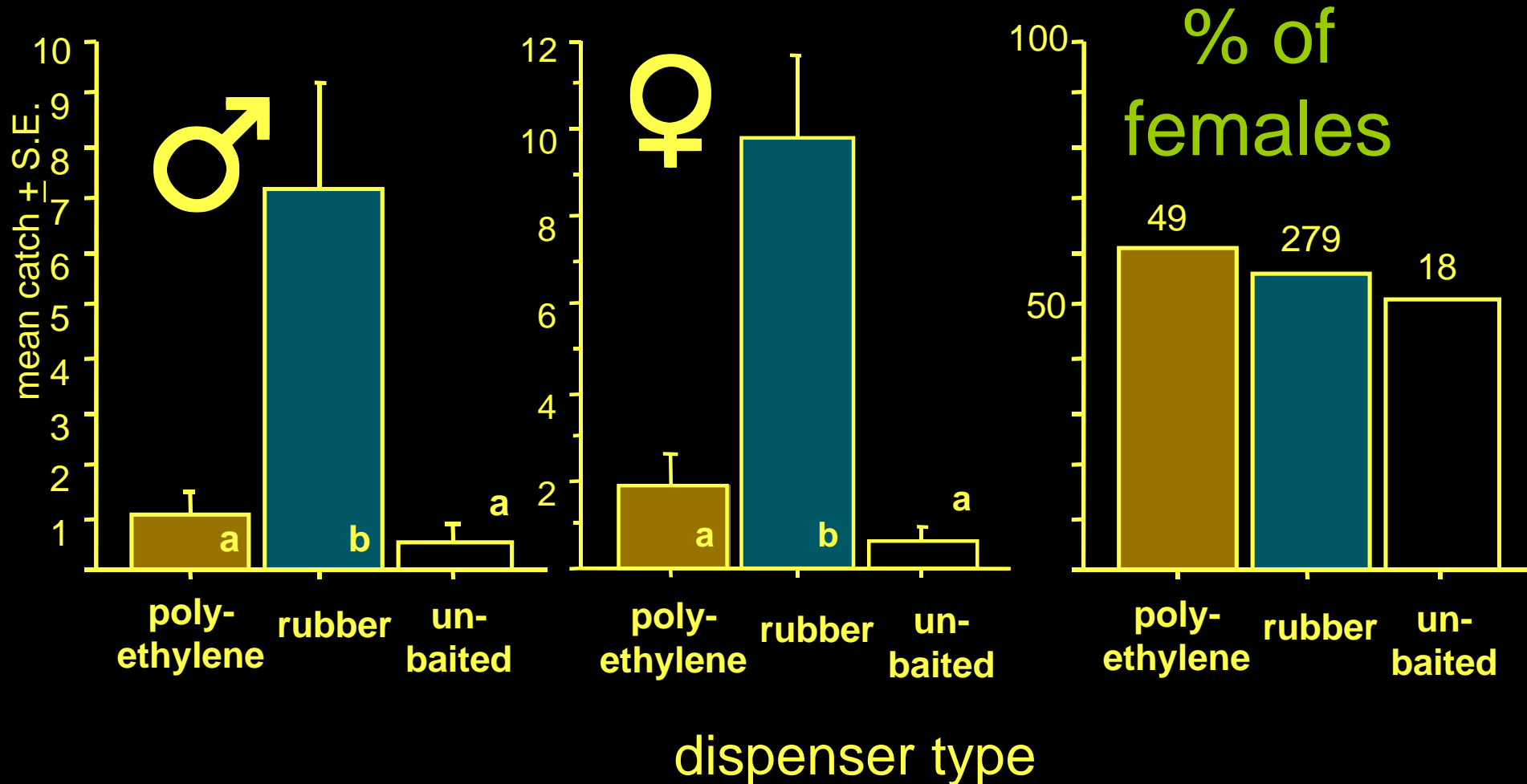


Kiskunlacháza, Hungary, 1997
May 20 - July 27. Total captured in test: 909 beetles.



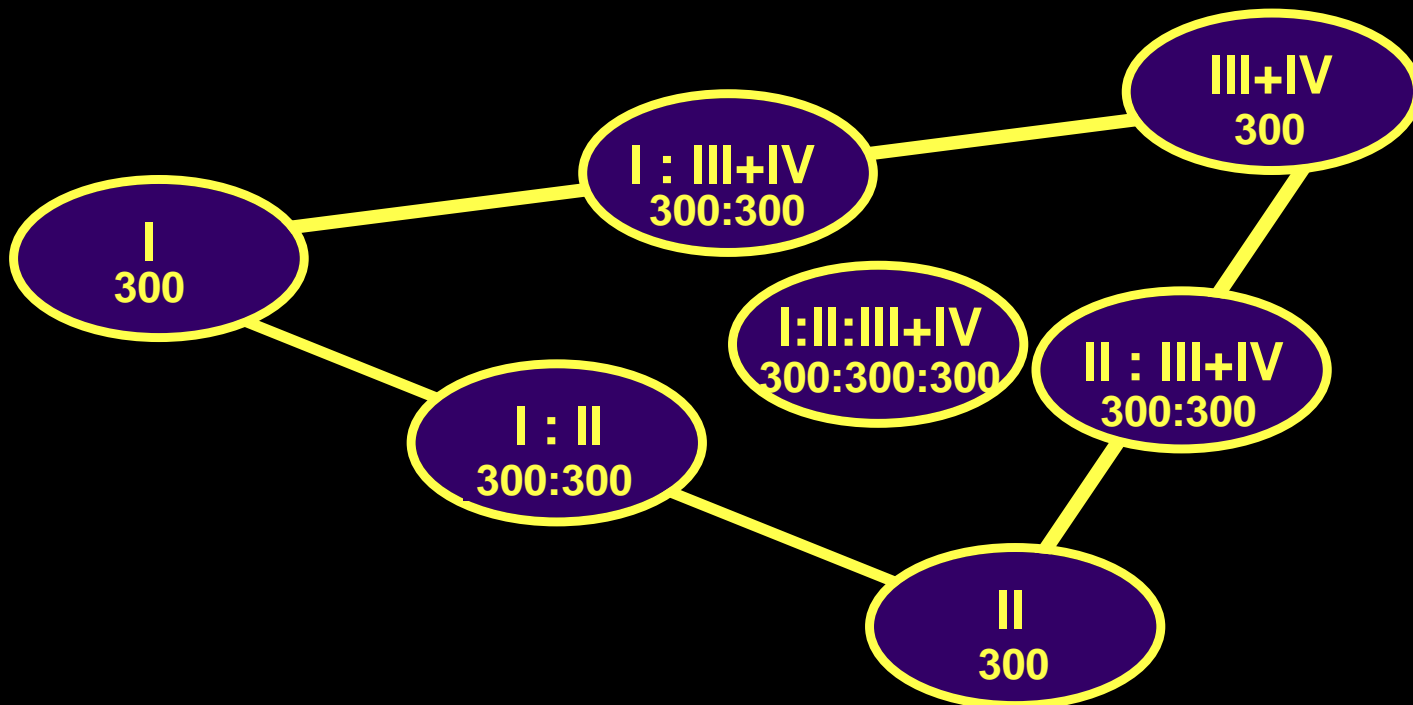
Rubber dispensers loaded with the ternary Grandlure mixture catch better; the newly discovered bait attracts both females and males of the sugarbeet weevil

Agárd, 1998 April 18 - May 7. Total caught in test: 339 beetles

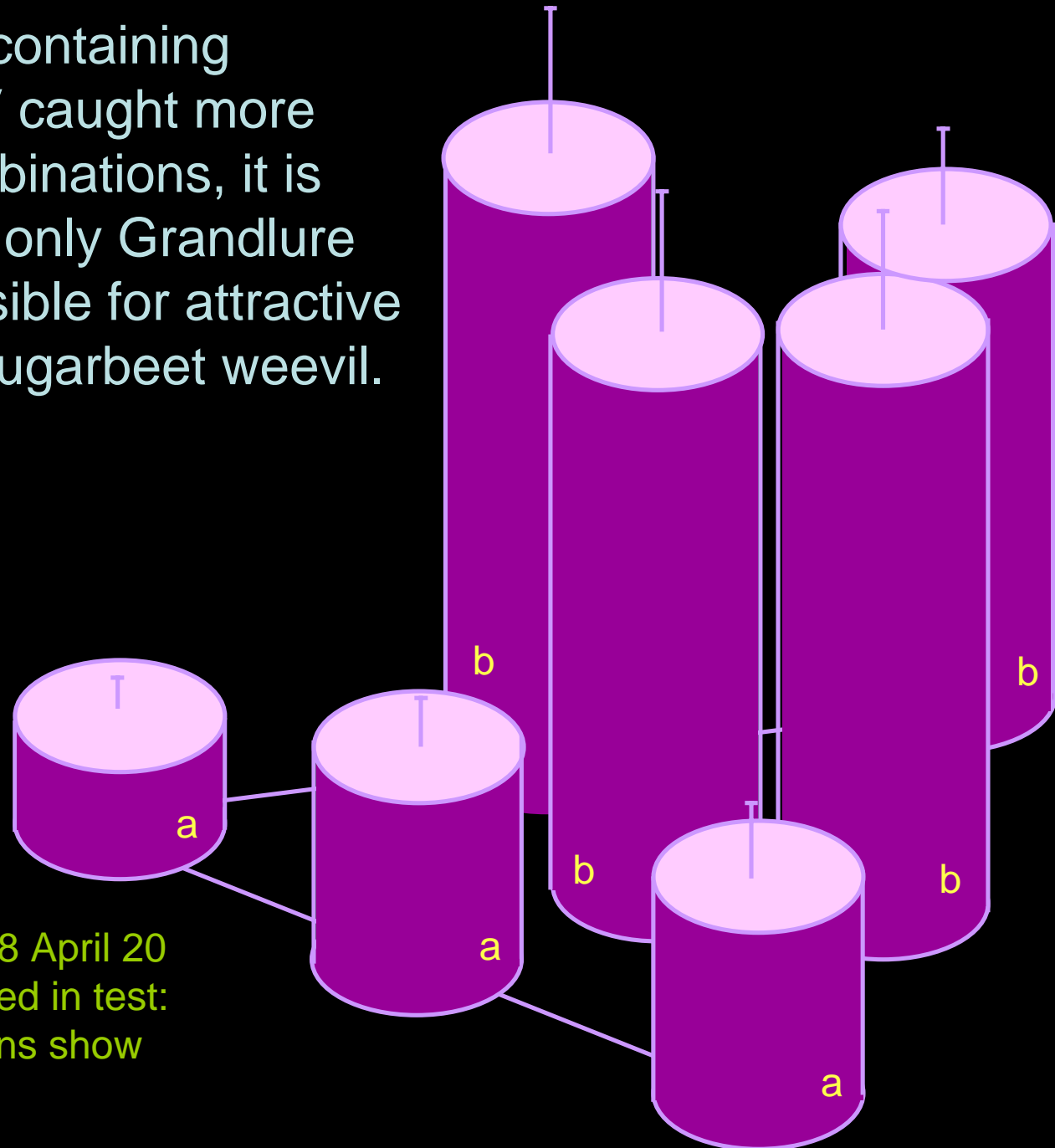


To study the relative importance of single components of the ternary Grandlure mixture in attracting sugarbeet weevils a subtraction test was conducted.

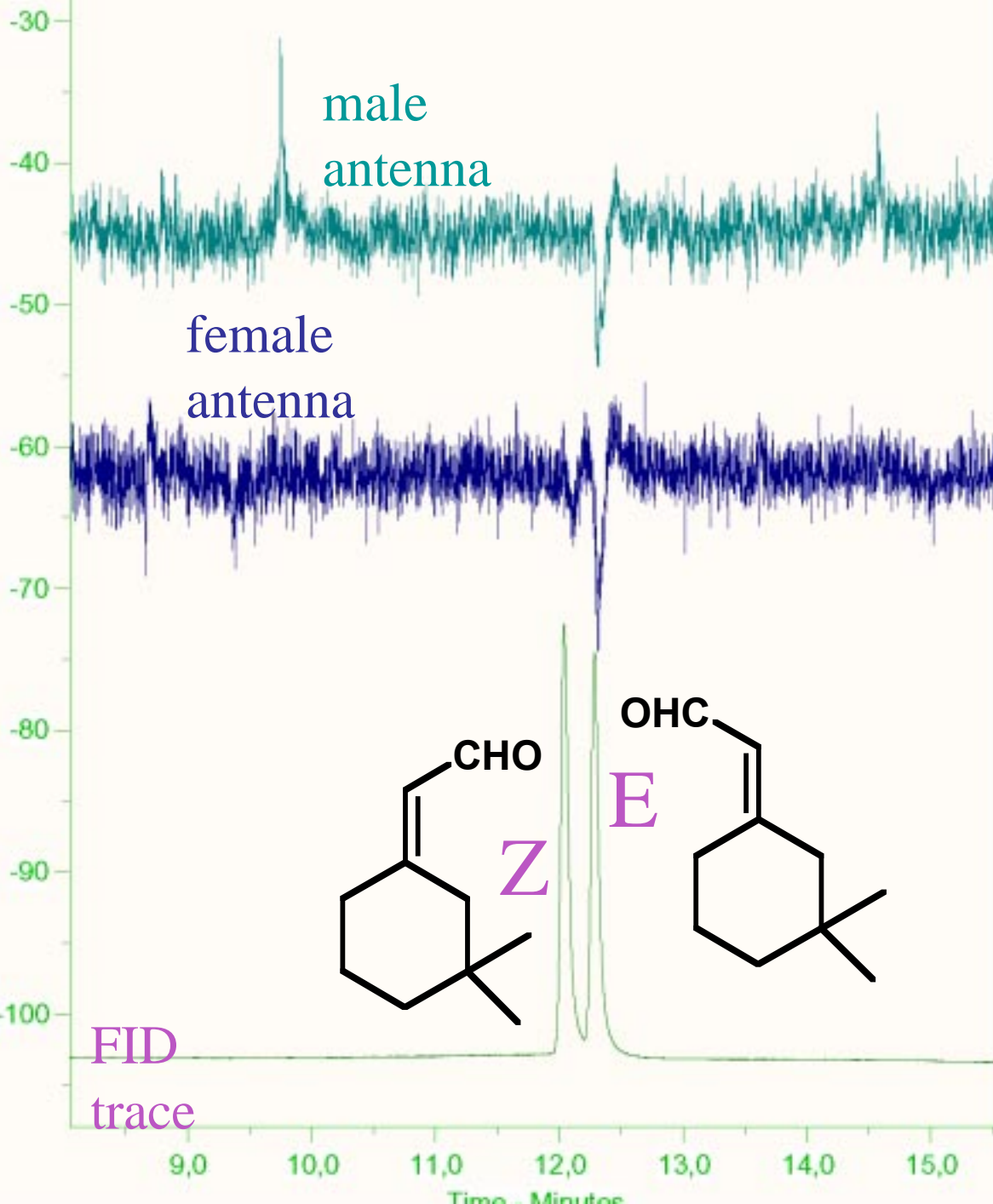
Bait composition in subtraction test (grandlure I, II and III/IV in μg):



Since all baits containing Grandlure III/IV caught more than other combinations, it is concluded that only Grandlure III/IV is responsible for attractive activity to the sugarbeet weevil.



Agárd, Hungary, 1998 April 20 - May 8. Total captured in test: 1025 beetles. Columns show mean catches \pm S.E.



When studying antennal responses of male and female sugarbeet weevils to (*Z*) and (*E*) isomers of grandlure III/IV in a GC-EAD apparatus, much higher responses were observed to the (*E*) isomer (=Grandlure IV), so this isomer seems to carry biological activity.

Field activity of samples of Grandlure III/IV with different isomeric content

% of <i>E</i> isomer (at beginning of test)					Mean catch		
					I.	II.	III.
<2%	50%	67%	85%	>98%			
+	-	-	-	-	n.t.	2.9a	4.6a
-	+	-	-	-	n.t.	2.9a	5.9a
-	-	+	-	-	9.0a	n.t.	n.t.
-	-	-	+	-	7.2a	n.t.	n.t.
-	-	-	-	+	n.t.	4.8a	8.2a
unbaited					1.7b	0.2b	1.1b

n.t.= not tested

Test I.: Pusztaszabolcs, Hungary, 2001 April 7 - May 10 ; total caught in test: 6126 beetles. Test II.: Adony, Hungary , 2002 April 11 – 19; total caught in test: 325 beetles; Test III.: Adony, Hungary , 2002, April 22 – 25, total caught in test: 400 beetles. Means with same letter within one column are not significantly different at P=5% by ANOVA followed by Games Howell test.

Catches by baits with high (*Z*) content are probably due to the formation of (*E*) isomer in the bait sample within 1-2 days under field conditions.

Baits containing higher % of the (*E*) isomer tended to catch more beetles, but the ratios close to 1:1 were not inferior. So for practical purposes a blend of (*E*) and (*Z*) isomers is very good.

The CSALOMON[®] TAL trap (modified pitfall) baited with the synthetic attractant can capture high numbers of sugarbeet weevils



Weevils caught
can easily be
removed from
the TAL trap.

