

RESPONSES OF GERMAN COCKROACHES WITH DIFFERENT FEEDING HISTORIES TO THREE TYPES OF FOOD

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Baits for controlling cockroaches are widely used by pest control operators, and bait acceptance by cockroaches is a matter of critical importance for the success of a food bait. Although many food attractants and feeding stimulants for cockroaches have been shown, no work has been reported of alterations in the feeding response of cockroaches induced by experience. Therefore the influence of feeding histories on the food selection of the German cockroach was investigated. One hundred and twenty adult cockroaches were divided into three groups. Each 40 were fed with one of three types of food, rice bran, dried fruit (apricot), or a dried meat product (dog food jerky), for 18 days. Then the food type was replaced by one of the other two for 10 days, and again by the first type for 5 days.

Every time when the food type was changed, 8-10 (4 or 5 each sex) were taken out from each group and used for food choice test, then discarded. The 9 feeding histories (the food succession and feeding periods in days) before the test were as follows. Group RAR: 1) rice bran (18 days), 2) rice bran (18 days) + dried fruit (10 days), 3) rice bran (18 days) + dried fruit (10 days) + rice bran (5 days). Group JRJ: 1) dried meat (18 days), 2) dried meat (18 days) + rice bran (10 days), 3) dried meat (18 days) + rice bran (10 days) + dried meat (5 days). Group AJA: 1) dried fruit (18 days), 2) dried fruit (18 days) + dried meat (10 days), 3) dried fruit (18 days) + dried meat (10 days) + dried fruit (5 days). In the test, after 2 days of starvation the cockroaches were allowed to feed freely upon two of the three types, always including the food experienced just before, for 10 minutes. The cockroaches usually preferred the other food to the just experienced, or liked the former more than before. Nymphs also showed similar responses.

The results indicate that two or more distinct types of food bases should be simultaneously used in a bait application to prevent the decline in effectiveness of the bait over time.