

Raising wasps that cotton to boll weevils

Twice a week, beginning May 18, entomologists have carted quart-size cardboard containers to a 1-acre cotton plot. As the scientists open the cartons, out fly 400 aggressive female wasps. Each has a single purpose – finding young boll weevils beside which to lay her eggs. To ensure that the tasty weevils stay put long enough to nourish her young, each wasp first paralyzes the weevil larvae – a move that eventually kills the young beetles.

A few growers release wasps and other insects for natural pest control, but these beneficial insects are raised on their natural prey, notes Edgar G. King, director of the Agricultural Research Service (ARS) subtropical laboratory in Weslaco, Texas. Indeed, his lab has been raising wasps on weevils. But the costs of rearing both predator and prey have limited adoption of biological pest control by U.S. agriculture. King hopes to change that.

The $\frac{3}{8}$ -inch *Catolaccus grandis* wasps his group began freeing last week in Monte Alto, Texas, represent the first release of beneficial insects reared on an artificial diet devoid of insects. And as of May 23, 3 days after the second release, King reports that sampling data indicate “we’re approaching 70 percent mortality” of the weevils susceptible to wasp attack.

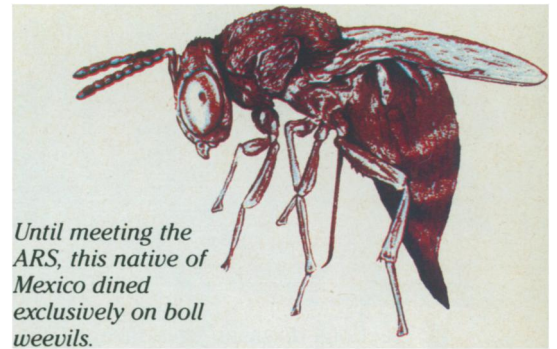
Guadalupe Rojas led the team’s program to develop the new diet – a custom blend of 57 different materials, including vitamins, fats, amino acids, salts, sugar, and cholesterol. Unexpectedly, the golden gel provides some chemical cue that encourages mother wasps to preferentially lay eggs that will become females – the weevil slayers.

“Based on calculations we’ve made,” King says, the artificial diet “might bring down costs [for biocontrol of cotton] from \$300 an acre to just \$30.”

The key to keeping costs low will be automated wasp rearing. In what may prove the ultimate offshoot of Project

Plowshare – a federal program begun in 1959 to develop peaceful uses for nuclear technology – ARS is turning to the Energy Department’s Kansas City, Mo., plant. Renowned for producing all the non-nuclear components of nuclear weapons, this plant is currently designing eight different prototype machines for everything from fabricating wasp food and plastic meal “cups” to gently moving individual wasp eggs and tracking batches of hatched insects.

Acknowledges Kathy Palamara of AlliedSignal, the company that manages the plant, “It sounds unusual, but it’s



Until meeting the ARS, this native of Mexico dined exclusively on boll weevils.

really a good fit for us in terms of exercising our skills in mechanical, chemical, electrical, plastics, and software engineering.” – J. Raloff

Dating acclaim but marrying self-perception

Two people meet, date, and decide to get married. Sweet ardor unites their destinies. But beware, lovebirds: The transition from dating to marriage typically triggers a major shift in how partners want to be evaluated by each other – a change for which neither spouse may be prepared, according to a new study.

In the early stages of a relationship, epitomized by dating, people mainly want praise from a partner, regardless of how well or poorly they think of themselves, assert William B. Swann Jr., a psychologist at the University of Texas at Austin, and his colleagues. Such praise signals acceptance of an individual as a potential mate, they hold.

However, married folks want a spouse to evaluate them as they see themselves, even if it means emphasizing their weaknesses, Swann’s team reports in the May JOURNAL OF PERSONALITY and SOCIAL PSYCHOLOGY. Having passed dating appraisals, spouses search for insightful feedback in light of what they know about themselves, the researchers say.

“It may be that courtship offers a stunningly inadequate preparation for marriage, particularly for people who have negative self-views,” Swann argues. “In both dating and marriage, partners may be compelled to walk a fine line between evaluations that are too positive or too negative.”

This conclusion clashes with an influential theory that people routinely seek rosy evaluations from others in all social relationships, regardless of what they think about themselves. The Texas psychologist has already published evidence that depressed people tend to confirm their negative self-concepts by seeking disapproving comments from friends and loved ones (SN: 8/15/92, p.110).

In their latest study, Swann and his associates recruited 86 married couples and 90 dating couples in central Texas. Volunteers’ marriages ranged from 1 month to 33 years; dating relationships from several weeks to 12 years.

Participants rated their own and their partner’s intellect, physical attractiveness, athletic ability, social skills, and aptitude in art and music. They also described the amount of intimacy and satisfaction in their relationships.

Married persons cited substantially more intimacy if their partner’s ratings verified their self-concepts. Dating persons reported the most intimacy if their partner gave them favorable reviews.

Thus, volunteers with negative self-views achieved the most intimacy with dating partners who offered plenty of praise and spouses who specialized in criticism. But their positive views of partners also offer some indirect satisfaction at marrying so well. Even participants with positive self-views noted discontent with spouses who gave them uniform raves, apparently reflecting a desire for realistic feedback about their weak points. Still, these individuals generally looked for praise from a spouse.

Participants with moderate self-views preferred lots of praise while dating and cited slightly more intimacy with moderately positive spouses.

Spouses usually did not have equally negative or positive self-concepts, Swann notes. People who think of themselves negatively often marry those with glowing self-views, he suggests. For example, a husband may assume an “incompetent” role while his wife takes a “competent” role. The husband satisfies the wife’s need for praise and the wife’s put-downs validate her husband’s inner suspicions, while he basks in the praise that he lavishes on her.

In such relationships, feelings of worthlessness and superiority may gradually intensify in the respective partners, leading to a breakup, Swann says.

“People with positive self-views want positive evaluations in all social relationships, so they have the easiest transition from dating to marriage,” he argues. “But it might be wise to spice up any courtship with a pinch of authenticity.” – B. Bower



D. Nance/USDA-ARS

King (standing) and Juan Morales-Ramos releasing weevil-reared wasps.

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