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photo representing the target word or expression, accompanied by the pronunciation of the same in Spanish. Little by little our vocabulary is added to. We may see a woman and hear *mujer*, and then we see a woman drinking, *la mujer bebe*.

Whenever possible, it is better to have a photo representative rather than a written or verbal description in our own language. The idea is to associate the word in Spanish directly with that item, rather than have to take multiple steps. Instead of seeing a horse and translating that into our minds, "ah, a horse, horse means *caballo*" we think *caballo* right away.

Rosetta Stone® teaches the target language with native pronunciation, and provides plenty of vocabulary to form a base from which to expand to other areas of interest. In one of the screens, for instance, we may see four photos: a boy drinking, a boy eating, a girl drinking, and a girl eating. Even though we may not have previously been taught the full expression, we can figure out what it will be by the time we get to that screen. Before we know it, our mind begins to make grammar rules and think in the new target language.

For the most part, Rosetta Stone® does a very good job of building from one word, or short expressions, to longer expressions. So you know *la mujer*, then *la mujer bebe*, and finally, *la mujer bebe leche* (the woman, the woman drinks, and the woman drinks milk). It is very nice to learn how words work in context, rather than as a vocabulary list. In this way we will learn to follow proper grammar rules almost effortlessly.

Rosetta Stone® will also test our knowledge and review earlier lessons as we move on through the course. This process helps to keep the vocabulary active in our minds. And of course, we can review any particular lesson as many times as we wish. After I had completely conquered a lesson, I found it very useful to completely turn off the sound on the computer so that I was not just repeating the lesson, but testing myself. I used this in two different ways. One was to assess my reading skills and another to see if I had really internalized the expressions.

Rosetta Stone® also provides the lessons in mp3 audio files. At first I was surprised that these were completely in the target language. At one time I had used *Language 30* audio, which would provide the word in the known language, and repeated twice, after a pause, in the target language. Over time, I have come to find great value in the Rosetta Stone® immersion approach and the importance of listening to these audio files. As we listen to the audio files during commute, exercise or at other times, our brain will pick up certain words and expressions. It does not matter at all if we know what a particular word means. As we come across that word or expression during our regular computer practice sessions, we will learn these faster. Also, these audio files are an excellent review of materials learned.

The newest version of Rosetta Stone® with the various TOTALe™ components provides a powerhouse of learning opportunities. The traditional software helps learners pick up vocabulary and grammar naturally, the way we picked up our native tongue. The various TOTALe™ components provide lots of motivation as we make our way through the difficult process of learning a new language. I was impressed by the people who work for Rosetta Stone®, from the people giving the introductory talk that explains the various learning options, to the invaluable asset that Rosetta Stone® provides through their effective and positive teaching style and committed instructors. Learning a new language has never been easier, but it still takes effort and commitment.

Note: The full-length version of this article is online at <http://www.cnr.berkeley.edu/ucce50/ag-labor/7article/articles.htm>

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Assessment of Multiple Approaches for Controlling Gophers in Orchards

Pocket Gopher Control Options

Pocket gophers cause extensive damage to many crops throughout California. Many tools are available for controlling gophers including trapping, fumigation with aluminum phosphide, poison baits, and the use of a gas explosive device. Trapping gophers has been a common method for controlling gophers for many years. However, a new trap called the Gophinator (Trapline Products, Menlo Park, CA) is now available that may increase efficiency of trapping. Additionally, combining aluminum phosphide fumigation with trapping may increase effectiveness, as gophers will occasionally spring traps without getting captured. In these situations, gophers often become trap shy and are much more difficult to capture. Treating these tunnel systems with aluminum phosphide shortly after trapping could remove these individuals from the population thereby increasing gopher control in vineyards. Poison baiting has often been used to control gophers. Efficacy of baiting has varied widely, although strychnine has traditionally been most effective. Gas explosive devices may also be effective. These devices combust a mixture of propane and oxygen within tunnel systems, thereby killing gophers through concussive force while also destroying the burrow system.

Testing Efficacy

All of these methods are currently allowable techniques for controlling gophers in California, although the efficacy and efficiency of these approaches, particularly in com-

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parison to one another, have been unclear. Therefore, I tested these control strategies at Laguna Ranch, Sebastopol, CA, from 6 April – 8 May, 2009, to estimate the efficacy and efficiency of these approaches. Plots of all three treatment types (trapping + aluminum phosphide, baiting with strychnine, gas explosive device [Rodentor®]) were established within each block. Comparisons of the number of gopher activity plots that contained fresh gopher mounds and feeder holes before and after treatments showed substantial reductions in gopher sign for all trapping + fumigation plots (range = 74–90% control). No baiting (range = 30–56% control) or Rodentor® (range = 0–55% control) plots indicated substantially reduced gopher sign. The time required to apply each treatment was relatively similar between baiting, trapping, and Rodentor® treatments (90–106 seconds per burrow); fumigation treatments were substantially longer (260 seconds). Approximate costs per acre for each treatment were \$420 for baiting, \$396 for the Rodentor®, and \$252 for trapping + fumigation.

Conclusions

To be effective, control measures need to result in a minimum of a 70% reduction in plots with gopher activity; values of 80–90% are preferable.

Trapping + fumigation met this minimum criterion in all three plots, and met the more rigorous criterion in 2 of 3 plots. Even the one plot that fell short of an 80% reduction in plots with gopher activity yielded a 92% reduction in overall gopher activity. In addition to being more efficacious, trapping + fumigation was also more cost effective. Therefore, trapping + fumigation appears to be an effective method for controlling gophers.

Baiting and Rodentor® treatments did somewhat reduce gopher activity in most plots, but these levels of control fell well below the minimum threshold for effectiveness (70%). As such, growers may realize short-term benefits from control, but will have to apply equal effort for control the following year, whereas more effective control measures (80–90%) would reduce the cost of control in subsequent years.

Recommendations

Although controlling pocket gophers is possible year-round, control methods are best conducted from winter through early spring when soil moisture is high. Gophers mound more during this period; identifying fresh mounds is key to effective control.

Trapping and fumigation with aluminum phosphide appear to be the most effective methods for controlling pocket gophers. Areas should be treated a minimum of two times to increase overall control.

Baiting and Rodentor® treatments were less effective following two treatment applications. The effectiveness

of these methods would likely increase with further applications. However, these added treatments would increase the cost of control.

The size of gopher populations should be assessed before and after treatment to determine the effectiveness of treatment applications. An easy method to index gopher populations is to establish 20 to 25 30x30 ft. plots evenly throughout your treatment area. A few days before treating the field, flatten all old mounds within each plot (using your boot or a rake is a good way to flatten mounds). Three days later, check all survey plots for new mounds. Divide the number of plots with fresh mounds by the total number of plots and multiply by 100. This provides an estimate of the percent of your field with gopher activity. Repeat this process 2–5 days after applying control treatments (i.e., baiting, trapping, fumigation, etc.). This will give you the percent of your field occupied by gophers before and after treatment and will let you estimate how effective your control measures were. Ideally, you should work to reduce gopher populations by >80–90% to observe substantial reductions in gopher populations the following year. Once treatment applications are finished, continue to monitor fields periodically for reinvading gophers. Pay particular attention to the perimeter of fields, as these are the areas that gophers will first reinvade. Controlling gophers along the perimeter of fields will keep gopher populations from building back up throughout your fields.

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Eat Your Fruits and Veggies and Don't Fear the "Dirty" Rhetoric!

Should you be worried about pesticide residues on specific fruits and vegetables? The Environmental Working Group (EWG), a U.S.-based environmental advocacy group, believes you should be, and has released the latest version of its annual "Dirty Dozen" list, representing the 12 fruit and vegetable commodities alleged to contain the greatest relative levels of pesticides. Are such rankings validated by a careful examination of scientific evidence? Absolutely not. Should you continue to try to eat more fruits and vegetables? Absolutely!

Since its release in June 2011, the list has drawn widespread media attention and consumers have been bombarded with headlines such as "An apple a day... means you're eating plenty of the most contaminated fruit;" "Don't like pesticides? Better avoid these fruits and veggies;" and "Beware of pesticides in fruits and vegetables."

According to the EWG, consumers should purchase organic forms of the commodities on the "Dirty Dozen" list or consume fruits and vegetables on their "Clean Fifteen" list, which they have found to contain the lowest relative pesticide levels. However, the benefits of eating fruits and vegetables, regardless of how they were produced,