

# Plant Profile

## Garlic Trials

by Daniel Howell

At our demonstration farm near Datil, New Mexico, the Running Rain Society has conducted a five-year study of the feasibility of garlic as a runoff crop.

In their landmark book, *The Negev: Challenge of the Desert*, M. Evenari et al describe unsuccessful attempts to plant garlic as a winter vegetable. Thus, we were understandably reluctant to consider it seriously until we found a local variety growing semi-wild in Socorro, New Mexico. A local gardener of some repute said it had been growing around an old adobe since he was a child. The garlic was growing densely in a grass-like mat, the result of years of bulb shatter and resprouting. The bulbs were barely noticeable.

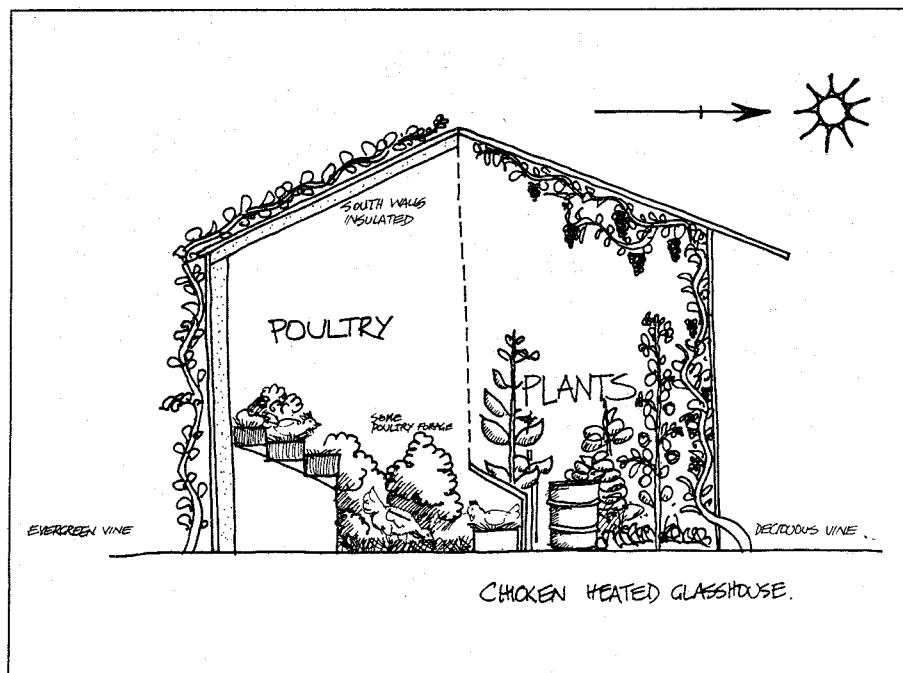
We decided to plant immediately as it was then March. We made one 4 foot row and planted the bulbs 6 inches apart. Since spring is our driest season, we apply water to get spring plantings established. The garlic row received 2 1/2 gallons at planting time. The bulbs grew a few inches and turned brown in June. We were not impressed when we found that the bulbs had only swollen and had not formed any cloves. We learned that this was common under adverse/low moisture conditions. We decided to replant in August when soil moisture is high, not water, and wait until late the following spring to harvest.

Sprouts came up in the fall and remained green all winter. In the spring they formed bulbels (top setting or aerial bulbs) and made cloves. I considered this a success even though cosmetically the garlic was unmarketable (size was small and

cloves difficult to clean). But we quadrupled our stock. We planted both cloves and bulbels: the bulbels formed bulbs the first year and the cloves the second year. By June 1988 we had a full supply of garlic for ourselves, using only runoff with no additional water. The bulbs remained small. Fall and winter of 1989-90 was extremely dry, with less than 100 mm of rain recorded. Soil moisture declined and investigation showed critical levels for plant survival. I decided to use a portion of our grey water and surplus cistern water to help the crop.

The harvest of 1990 was the best ever. The limited spring watering doubled the bulb size to 4 cm. It had been our practice to remove the immature bulbels in an attempt to grow larger bulbs but our busy schedule left that chore undone this year. Upon cleaning we had 186 bulbels weighing 6.8 pounds with 2.4 pounds of bulbs. The bulbels looked interesting so I tossed some to the free ranging chickens, who greedily ate them.

The garlic survived without watering but produced much larger yields with even minimal watering in the spring during bulb growth. Our plans include further study using drip irrigation to increase bulb size and field planting in swales to grow bulbs as a field crop for chickens. Even the smaller sized bulbels were useful (we made dried garlic chips), so swale planting would be multi-purpose. Garlic grown as a perennial (in the ground for ten months) succeeds under runoff conditions, raising the possibility of its use in a plant guild for forage production.



*An example of a combined chicken house and greenhouse in which the chickens and plants have beneficial connections. Illustration from Permaculture Two.*