



What were the results of our first year trials?

We planted 4 varieties of quinoa; Faro, Temuko, Oro de Valle, and Shelley Black using two different planting methods for comparison, row seeding and broadcasting, on each variety. Our farm is located in the hills of Allegany County, New York at an altitude of 2000 feet. The trial plots were planted in a valley bottom field of Pawling silt loam previously planted in alfalfa and buckwheat. The field was plowed in March and then cultivated twice as weeds emerged. No pesticides or soil amendments were applied. When we laid out the test plots we hand raked and removed all stones larger than 1 inch so that we could easily push our row seeder, an Earthway, through the fine soil. Because the quinoa seeds are very small we used the seeder disk with the smallest holes which is normally used to plant lettuce. For broadcasting we set the broadcaster to its smallest opening and used dried coffee grounds to dilute the quinoa seed by 50%. The row seeded plots were planted at a depth of 1/2 inch and the broadcast seeds were left on the soil surface without rolling or tamping. The first set of plots were planted on May 7th with soil temperature at 64 degrees and then another set of plots of the same varieties were planted 4 days later also using row seeding and broadcasting. Helped by a fine rain and unusually warm Spring temperatures the first seeds germinated in one day. Shelley Black germinated more slowly and irregularly than the 3 other varieties all of which germinated vigorously and grew so quickly that they required thinning. In the last weeks of May we also planted several observation plots of additional varieties on less finely prepared ground. The most successful of those plots were Linares and Brightest Brilliant Rainbow. The varieties Kaslala and Biobio failed to germinate. Growth of the quinoa in all the plots which germinated was rapid and outstripped most weeds except for goosefoot. At early stages of growth it is difficult to distinguish between goosefoot and many varieties of quinoa. As the summer progressed and we encountered drought conditions we did not irrigate but the quinoa nevertheless outcompeted the weeds and formed seedheads with distinctive colors. In early September the plants were from waist high to shoulder high with large seedheads although we could not detect any fully formed seeds. Mature goosefoot in the margins of the field did have seeds. We let the quinoa dry in the fields and harvested and threshed samples from each plot in October but failed to find more than a token amount of seed. Running a combine through one of the acre sized plots also failed to turn up any detectable seed. Dr. Elizabeth Dyck, our technical advisor, replicated our experiment on her farm in Bainbridge, New York 150 to the east of us. She was able to harvest small quantities of seed from her plots and also reported that the varieties which grew well for us grew well in her microclimate.



WHAT LESSONS CAN BE LEARNED FROM OUR EXPERIENCE?

The main lesson learned is that quinoa can grow in New York. It still remains to be seen whether it can produce a successful harvest. Previous research in the western United States indicates that high temperatures damage the pollen and prevent fertilization which results in having empty seedheads. This is similar to the problem of heat damage in buckwheat known as "blast" which produces empty buckwheat seeds. We believe that the abnormally high temperatures during the summer of 2012 may have interfered with the ability of the quinoa plants to produce seeds. There is also some evidence that daylength may have an effect on the ability of quinoa to set seed. If the ground is properly prepared by cultivating and seeds are given sufficient early moisture quinoa will germinate and grow in the North Eastern United States. Only by continuing our trials can we ascertain whether quinoa will produce seed and develop into a profitable crop in our climate.



WHY IS QUINOA IMPORTANT?

Small upland farms in the northeastern United States with short growing seasons and moderate soil fertility struggle to compete effectively with larger farms in warmer and more fertile areas of the nation. Traditionally small-scale dairy farming provided a solution by utilizing sloping lands

for pasture and hayfields while providing a steady income from milk sales. It was common to raise cash crops such as potatoes, buckwheat, maple syrup, apples or vegetables which were sold locally to supplement the dairy income. Increasing economic pressure from the giant thousand cow confinement dairies and a shortage of willing and affordable dairy help mean that the era of the small family farm is rapidly coming to a close unless diversification into high value crops adapted to the specific soils and climates of the Northeast can be achieved. With the rapid development of the market for gluten-free grains like buckwheat and quinoa and an increased awareness of the importance of purchasing locally produced foods, an avenue is open to innovative farmers to move into higher value specialty crops which will not be competing directly against bulk commodities from the Midwest or Plains states.