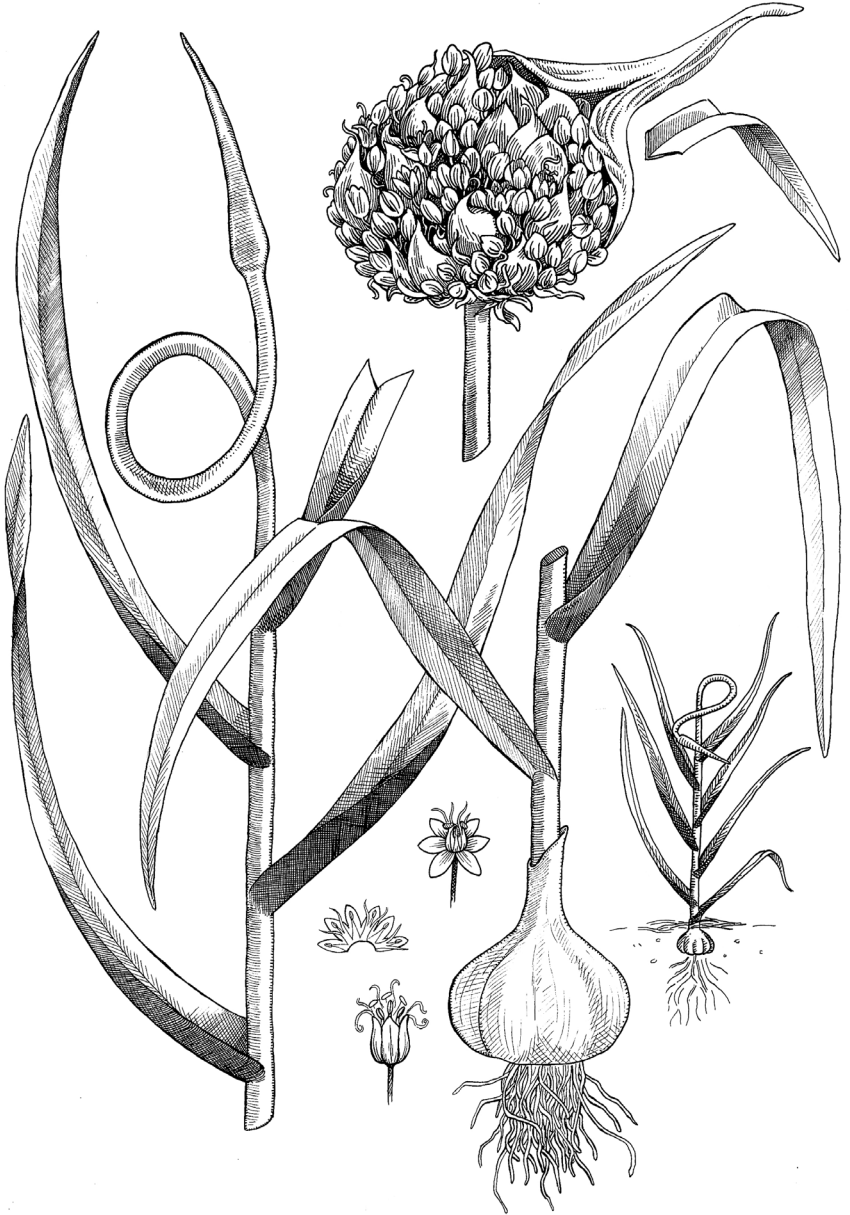
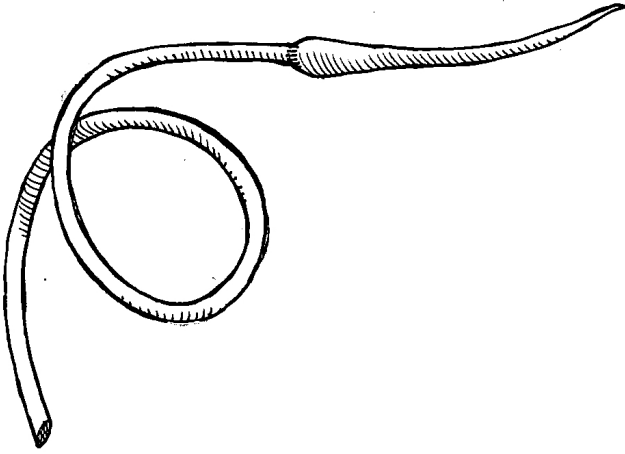


Garlic Types and Market Niches

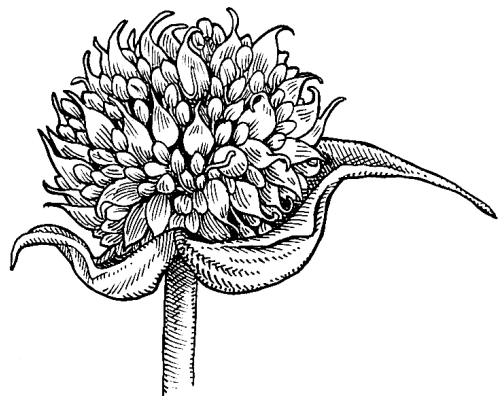




GARLIC TYPES AND MARKET NICHES

As an organic vegetable farmer, what do you - and your customers - want out of a garlic variety? There are hundreds of cultivars of garlic with a broad array of traits. Most consumers and farmers think of garlic in two categories: hardneck (bolting) and softnecks (non-bolting). However, technically, all garlic can bolt: softnecks will when stressed by cold spring conditions, and some hardnecks won't when not provided adequate vernalization. Nonetheless, softnecks typically do not bolt. While bolting is an important characteristic, garlic varieties differ in other qualities important to both the farmer and consumer. There are ten somewhat arbitrarily-named horticultural groups that can aid farmers and consumers in understanding and making use of garlic diversity.

Climate, latitude, soil and other abiotic factors have influence on how any variety will express in any given season. Pungency is affected by soil temperatures as well as soil sulfur content. Clove count is affected by latitude and vernalization, but also planting date: late plantings can result in normal sized bulbs with fewer cloves. That said, the harvest time periods and clove counts described here are generally applicable in the PNW bio-region west of the Cascades. Garlic will adapt over a few seasons. The changes growers may see are phenotypic variation, not genotypic variation.

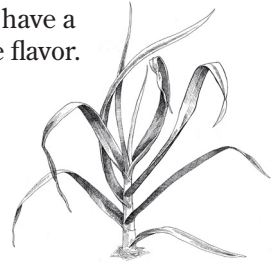
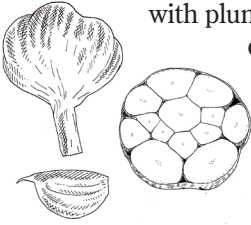


SOFTNECKS

Softnecks are favored by the California garlic industry and for good reason. They have the highest number of plantable cloves per bulb, don't require the extra labor of scape removal, and store far longer than most hardnecks. They are also braidable.

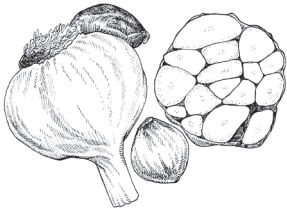
Artichokes, like California Early, Polish White, Inchelium Red, and Lorz Italian, mature in June and have round bulbs with 12 or more plantable cloves. Some varieties will produce immense bulbs with plump cloves. Milder in pungency, they have a distinct aroma and simple vegetative flavor.

They rarely bolt and are easy to grow in a wide range of conditions. They store for up to ten months after harvest. Highly recommended for CSAs and late winter early spring sales.

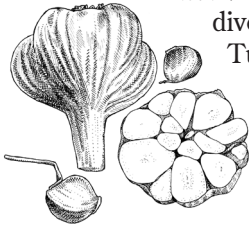


Silverskins, like California Late, Silver Rose, Mount St. Helens and Nootka Rose, have oblong white bulbs with a high count of red-streaked cloves. Their tight clove skins, while difficult to peel, result in long storage for up to 12 months. They have the highest weight-yielded to weight-planted ratio of all garlic types and as such are

profitable to grow. In the PNW, a percentage of them will bolt, especially when subject to chilly spring weather. Otherwise, they are ideal for braiding. Their flavor is simple: sulfurous and spicy from start to finish.



HARDNECKS



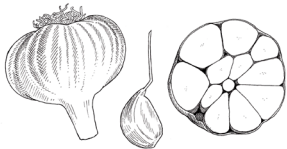
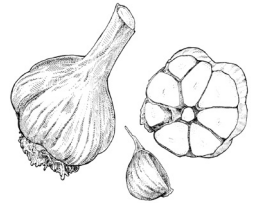
Turban types are the earliest to mature. There isn't a lot of diversity in this group. Named varieties include Basque Turban, Chinese Pink, and Bangkok. The plants emerge almost immediately after planting west of the Cascades.

This can be problematic in winters when temperatures drop into the low teens and single digits as the plants grow. Their leaves are broad and floppy: this lack of fiber makes them

ideal for garlic greens pesto. Indeed, since they are early to emerge they are the first in succession for garlic greens production. The bulbs are also the earliest to mature which makes them well suited to fresh green garlic sales. Their beautiful purple coloration is on the outside wrappers. They bolt weakly, and their scapes often do not coil before harvest. They have 8-12 plantable cloves per bulb and medium heat with an earthy flavor.



Asiatics are identifiable by their distinctive umbels and elongated beaks enclosed by a sheath. They have large bulbils that are frequently embedded in their stems (neck sets) and their scapes seldom coil. Beyond these characteristics, there is considerable diversity in this group. Some are mild and sweet, others bright hot; some are early and others mature mid-season; some are squat with broad leaves, others quite tall with upright leaves: most are very late to emerge. Generally, they have 6-8 plantable cloves/bulb.

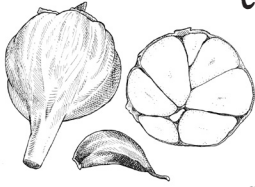


Glazed types, like Vekak and Purple Glazer, mature in June and have eight or more plump plantable cloves per bulb. The

plants have dark green fibrous leaves that make attractive bunches and the scapes have nice tight coils. The colorful bulb wrappers have a glazed, almost metallic veneer. Glazed types have a medium heat and dark, earthy flavor. Bulbs can size up very well and are high yielding but have thin clove skins and keep poorly; however, they do tolerate higher humidity in storage.



HARDNECKS



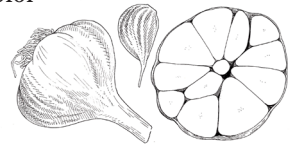
Creole types, including Donostia Red, Rossa di Sulmona and Creole Red, have excellent complex flavor with some variance in spiciness. They also have outstanding storage capacity on par with Silverskins. The tight clove skins have the most intense crimson coloration of all types. The plants have a

sprawling growth habit with broad floppy

leaves. Their scapes are the least fibrous of bolting garlicks, making them well suited to pesto. They can be fussy growers and are sensitive to cold temperatures, particularly in spring. Leaves will die and constrict new growth, so they have to be scouted and “de-collared”. Creole types size up better in milder climates and generally do well in the temperate PNW.

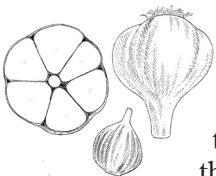


Purple Stripe types, like Shvelisi (aka Chesnok Red) and Samarkand, are late maturing and can store up to 9 months if humidity is maintained at or below 60%. With 8 plantable crescent shaped cloves per bulb, their weight-yielded to weight-planted ratio is higher than many other hardneck types. Their vibrant coloration is very eye catching, but as only the inner bulb wrappers are colorful, the outer wrappers must be stripped to reveal that colorful interior. They have a complex spicy flavor. Purple Stripes are ancestral to all other domesticated garlic types.



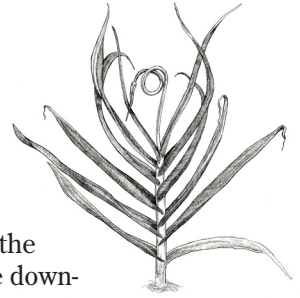
Porcelain types, like Music, Krasnodar White, German Hardy, and Northern White, feature impressively tall plants with broad, dark green, fibrous leaves. The bulbs are impressive with 5-7 large reddish cloves with porcelain white wrappers. While the clove size appeals to consumers their actual weight-yielded to weight-planted ratio is fairly low. They mature late and can store 5-6 months. Porcelain garlics thrive in colder climates where the ground freezes winterlong. They seem more susceptible to viruses than other

types. Porcelains are quite sulfurous raw, among the hottest, and have excellent nutty flavor when roasted.

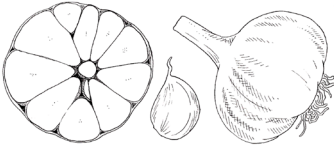


HARDNECKS

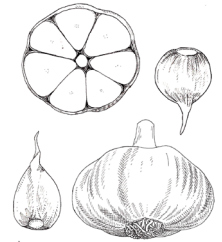
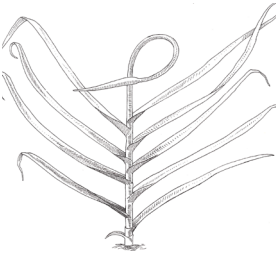
Rocamboles types, like Spanish Roja, Italian E-Z peel, Killarney Red, and Carpathian, are charismatic plants with wide closely-spaced leaves and scapes with nice double coils. The bulbs can size up very well and have 8-14 plantable cloves per bulb. Customers love them due to their outstanding rich flavor and ease of peeling. They are a favorite for pesto. For the consumer, they are ideal; however, they do have some down-



sides. Rocamboles often produce double and triple cloves which, if planted, will turn into multiple plants. While easy to peel, their loose clove wrappers make them mite susceptible and subject to early desiccation. If mite-free they will keep until it's about time to replant them.



Marbled types, like Siberian, Khabar, Metechi and Jupiter, are large plants with broad, light green leaves with inwardly curvaceous leaf architecture. Showy bulbs with 5-7 squat tannish cloves are enclosed with lush purple blotched wrappers. Most scapes are quite thick but others have weak pliable stalks. Like Porcelains, consumers love the large clove size. Bulbs can weigh up to a quarter of a pound but their ratio is low, in weight-yielded to weight-planted. Marbled can be very sulfurous. Similar to Porcelains, they thrive in cold winters.



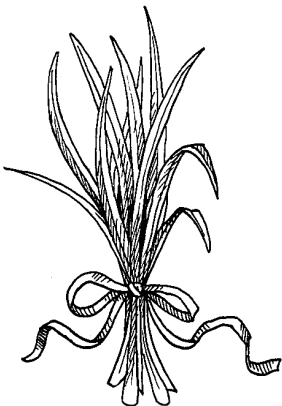
OTHER GARLICS

There are garlics that do not readily fall into this classification system. Classification systems are useful lenses through which to look at plants, but they can also hinder observation. There are some cultivars that possess traits of multiple groups: other cultivars have no group-specific traits. This includes some accessions that were collected from the wild in Central Asia, others that were a result of sexual reproduction (True Garlic Seeds), and others that are just downright different and we have no idea why. As an example, there is an entire 'Middle Eastern' horticultural group containing accessions of no commercial value when grown at our northern latitude.

True Garlic Seed (TGS) For six millennia, garlic has been propagated asexually: a clove planted, a bulb yielded. It is unsurprising that, after such a long duration, garlic can be a host to viruses and other pathogens. Most garlic cultivars are infertile. However, over the last 30 years, researchers have identified fertile accessions and restored fertility to infertile accessions. One benefit of sexual propagation of garlic is that viruses typically are not carried over in true seed. In addition, breeders can select for increased vigor; desirable traits like plant structure (for easier cultivation) and root mass; adaptability to differing climates; bulb characteristics like color, clove shape, and size; and disease resistance. While most garlic breeding programs are controlled by private industry, there is some TGS germplasm in the public domain. The process to produce True Garlic Seed is open to all who wish to experiment.

Yield and Profitability Yield should not be evaluated solely by bulb weight; the number of plantable cloves per bulb must also be considered. A variety that yields four-ounce bulbs will be high yielding on a per acre basis, but could have a low weight-yielded to weight-planted ratio. If there are only four cloves per bulb a quarter of the crop must be set aside to replant. It is more profitable to grow a type with 8-12 plantable cloves/bulb than a type with 4-6 plantable cloves/bulb. When buying seed, think about the cost as plantable cloves/pound and the weight-planted to weight-yielded ratio.

VARIETIES FOR YEAR-ROUND MARKETS



Fresh Bunched Greens
January - April

Turban: 1st slot
early emergence, tender leaves

Glazed: 2nd slot
dark green, vertical leaves

Silverskin: 3rd slot
late, stemless, won't oversize, marketable as bunched greens in May

Scapes

May-July: listed in order of scape harvest (scape timing depends on latitude and soil temperature)

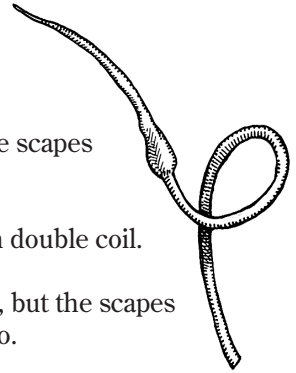
Turban types will be the first to scape (though the scapes may not coil).

Glazed types will produce slender scapes that can double coil.

Creole types follow; their scapes don't coil tightly, but the scapes are less fibrous, making them ideal for scape pesto.

Marbled and Porcelain scapes are thick and well-suited for grilling.

Rocambole and Purple Stripe scapes are the last to be harvested in late June.



Mature Bulb Harvest Dates (in southern Oregon)

1st week of June: Turbans

2nd week of June: Early maturing Asiatics

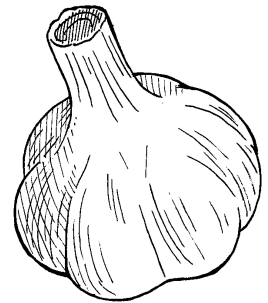
3rd week of June: early Artichokes and Glazed

Late June: more Artichokes and Late Asiatics

End of June into July: Creoles, Porcelains and Purple Stripes

1st-2nd week of July: more Porcelain, Purple Stripe and Rocambole

2nd week of July: Marbled and lastly Silverskin plus any late maturing stragglers



Dry Bulb Storage Duration

Store at 60° F and 60% relative humidity

The Eriophyid mite *Aceria tulipae* (dry bulb mite) feeds on cloves causing desiccation and thus reducing storage duration. Some garlic types are more susceptible than others. If stored under ideal conditions with minimal mite pressure, the following are approximate storage durations for the horticultural groups. Note that varieties with tight clove skins that are difficult to peel will keep the longest.

Glazed: 5-6 months

Rocambole: 5-6 months

Turban: 6-7 months

Asiatic: 6-7 months

Porcelain: 7-8 months

Marbled: 7-8 months

Purple Stripe: 8-9 months

Artichoke: 9-10 months

Creole: 10-11 months

Silverskin: 11-12 months



Author: Avram Drucker, *Garlicana*
Editors: Alex Stone and Lane Selman, Oregon State University
Layout: Shawn Linehan
Artist: Fiona Murray, *fionabearclaw* on Etsy
Funding: Western SARE



