

# FILBERT GROWING



## FOR PROFIT

In the  
PUGET SOUND  
COUNTRY



# FILBERT GROWING IN THE PUGET SOUND COUNTRY

PRESENTING A TREATISE ON  
THE FILBERT NUT

*By*

A. A. QUARNBERG

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*Price Fifty Cents*

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*By*

**PUGET MILL CO.**

Walker Building  
SEATTLE, U. S. A.

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HIGHLY PRODUCTIVE FILBERT TREE AT ALDERWOOD MANOR, WASH., GROWN IN BUSH FORM

JUN -4 1917

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S.F.R.

# FILBERTS

*For Pleasure and  
Profit*

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## FOREWORD

THE object of this booklet is to call attention to the pleasure, profit and permanent satisfaction to be gained by the growing of Filbert Nuts in the Puget Sound district of Western Washington—especially that territory lying north of Seattle, where climatic and other conditions are more favorable to their cultivation than in any other portion of the United States.

As owners of a large area of land in this locality, the Puget Mill Company undertook investigation of the various products derived from the soil in countries possessing similar climatic conditions, with the intention of introducing here the most profitable and best-adapted yields wherever they might be found.

With knowledge that the Puget Sound locality has a climate virtually identical with much of Southern Europe, and with the British Isles, we were led to a special analysis of the fruits, nuts and other products of commercial success in those portions of the globe.

**Puget Sound**  
America's  
Favored Spot  
for  
**Filbert Culture**

Among the many financially profitable industries of agricultural life developed there we found none so conspicuously prominent in its appealing features as the growing of Filbert nuts. In fact it is difficult to

find in those countries the small home without the beautiful Filbert tree and its generous yield.

Filbert nuts enter largely into the diet of those people who dwell in that portion of the Old World (Southern Europe) which under modern exploration furnishes so much evidence of ancient history and undoubtedly the cultivation and use of the Filbert and other nuts has been handed down to the present generation from prehistoric times when human kind were compelled to subsist on what Nature provided, not having arrived at a condition when man's ingenuity had developed food conditions such as we enjoy in this day. Indeed, the industry of Filbert growing has assumed tremendous proportions there, and the exportation of Filberts to all parts of the world amounts to millions of dollars annually.

With the outbreak of the European war, however, the exportation of Filberts to the United States and to the Latin-American countries was

virtually shut off, and the stern law of necessity gave rise to a new enterprise in the utilization of Filberts, producing from the nut Filbert oil for cooking and lighting purposes, and also for the making of soap.

While many attempts have been made to introduce the growing of Filberts in different parts of the United States, it is not until the last quarter-century that success has been attained on such a scale as to warrant plantations for commercial purposes. Because other parts of the United States have lacked the favorable climatic and other conditions that are so conspicuously present about Puget Sound, attempts elsewhere have served but to emphasize Puget Sound's adaptability to this interesting form of culture.

But the financial advantages of Filbert growing in Western Washington have been so thoroughly tested and demonstrated over a quarter century period as to prove in our opinion that the man or woman with foresight, by acquiring a Filbert orchard now, can look forward to ample returns and income not only for this generation, but for the second and third generations to come. And this takes into account only the partial utilization of the land, for with Filberts may be produced other crops and other yields that go to make up the intensive cultivation of land foreshadowing the "new life of the land."

Upon the demonstration farm of the Puget Mill Company at Alderwood Manor, on the Seat-



THRIFTY AND PROFITABLE FILBERT ORCHARD WEST OF THE  
CASCADE MOUNTAINS

tle-Everett interurban electric railway, we have a large plantation of Filbert trees of various varieties. As a member of the horticultural staff at that point, we consider ourselves particularly fortunate in having Mr. A. A. Quarnberg, who undoubtedly is regarded as the leading American authority on Filbert culture.

Mr. Quarnberg's province will be to teach and assist all those who are interested in this fascinating and profitable form of land cultivation. Mr. Quarnberg has spent the most useful years of a long and singularly seasoned life in developing to commercial success the growing of Filberts in the State of Washington.

With an orchard made up of Filbert trees from many parts of the world, Mr. Quarnberg has



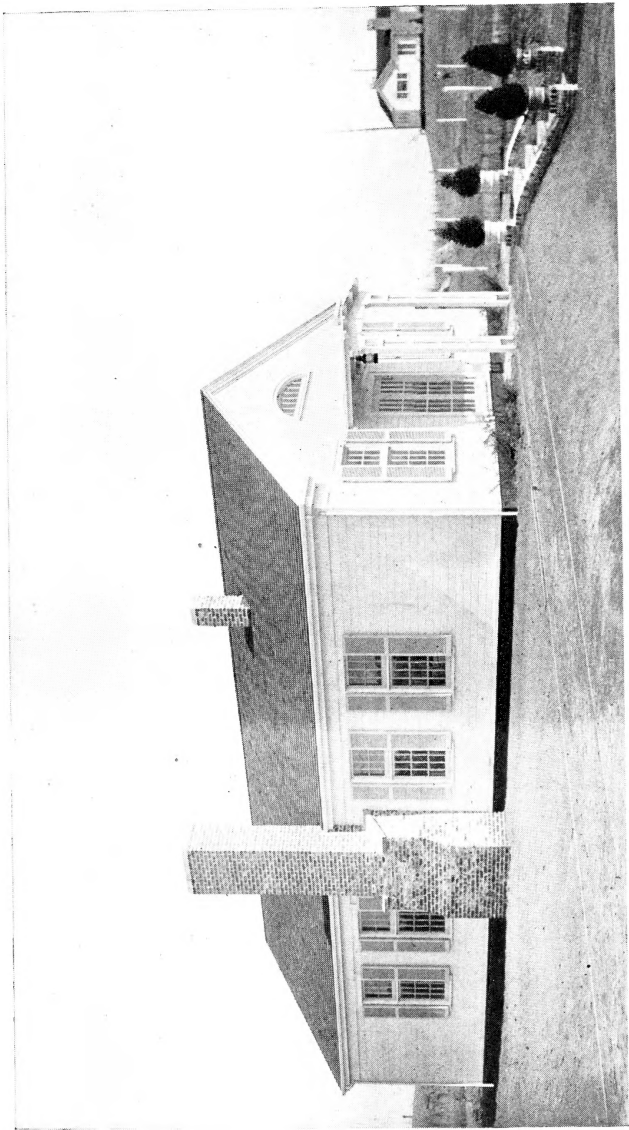
standardized Filbert culture into two varieties—the Du Chilly and the Barcelona, and for the benefit of present and prospective Filbert growers Mr. Quarnberg has written the following treatise. We hope it will not only afford all required information and direction in regard to this interesting subject, but will point the way to success and independence for the many who love Nature, love to watch the miracles the soil will produce, and who long for a full and complete life that will round itself out in peace and plenty for future years.

**Alderwood  
Manor  
Ruralizes  
the  
City**

Alderwood Manor is ideally situated, not only with regard to its physical advantages for the cultivation of Filberts, but because of its location within such easy reach of a metropolitan center. Only a matter of minutes from the center of Seattle, Alderwood Manor provides a home

spot of unique attractiveness, with electric lights, telephones and the comforts of the city, yet with the beauty and charm of the country. The ornamentation and utility of the country place, we believe, cannot be promoted to greater advantage than by the cultivation of the Filbert tree.

For the man who wants the freedom, the health, the wholesome surroundings of the country for himself and his family, for the man who realizes that it is not the amount of land he possesses but the utilization of that land, Alderwood Manor and Filbert culture, under the expert guidance and



EDUCATIONAL AND SOCIAL HALL AT ALDERWOOD MANOR, WHERE RESIDENTS ENJOY THE BENEFITS OF FREE INSTRUCTION IN FILBERT GROWING, INTENSIVE POULTRY FARMING, AND OTHER AGRICULTURAL PURSUITS

direction of the Alderwood demonstration farm,  
afford a combination of wonderful appeal.

**PUGET MILL COMPANY,**  
Walker Building,  
Seattle, Washington.





A. A. QUARNBERG

ONE OF AMERICA'S FOREMOST AUTHORITIES ON THE  
GROWING OF THE FILBERT NUT

# FILBERT GROWING

By A. A. QUARNBERG

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FOR centuries filbert culture has held a prominent place among the industries of various European and Oriental countries, not only because filberts are a desirable food, but also on account of their value as an article of export.

Because of adverse conditions, efforts to grow filberts in the eastern sections of the United States have been discouraging, resulting in the importation of millions of pounds of filberts annually for consumption in the United States.

After twenty-three years of local experience the fact is established beyond a doubt that the climatic conditions are ideally adapted to filbert culture in the Pacific Northwest.

Here as fine filberts as any ever produced in any country have for years been successfully grown and it seems certain that filbert growing will develop into a profitable industry of large commercial proportions.

With practically no filberts produced in the eastern, northeastern and southern states, there is a ready market in the United States for all the filberts that can be grown in the Pacific Northwest.

The favorable climatic conditions for production of filberts in the Pacific Northwest, and especially in the Puget Sound region, Washington, are a valuable resource well worth developing.

This article is not intended as a scientific or technical work on the filbert, but simply to give some practical information, the result of experience, concerning European filbert (*corylus avellana*), its culture, training, etc., as at present practiced in the Pacific Northwest.

## DESCRIPTION

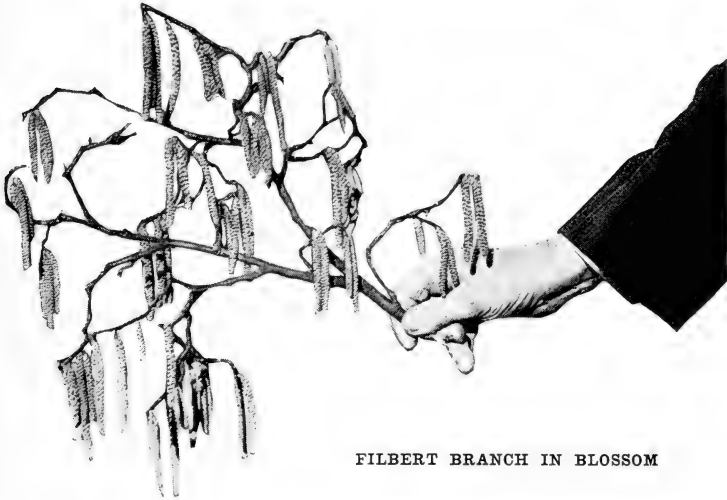
The word filbert as generally used, designates hazel-nuts of commerce. Andrew S. Fuller in his "Nut Culturist" says:

"The common name filbert is from 'fullbeard.'



BARCELONA FILBERTS IN THE HUSK.

All varieties with husks extending beyond the nut with fringed edges are filberts, while those with husks shorter than the nuts are hazels from the old Anglo-Saxon word *haesel*, a hood or bonnet. The



FILBERT BRANCH IN BLOSSOM

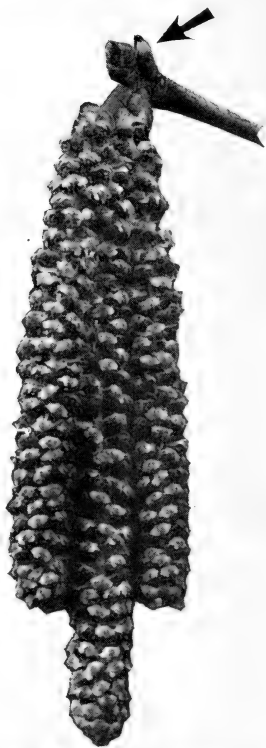
parentage, size, form, or quality of nut is not to be considered in this qualification, for when the nuts are ripe and fallen from the husk, there is nothing left to distinguish the hazel from the filberts.”

The filbert (*corylus*) is a deciduous tree or shrub of which the fruit is a nut enclosed in a leafy lacinated calyx cup or husk. It blooms before the leaves appear in the spring.

The male flowers are visible early in the autumn and appear in cylindrical catkins which, in the Pacific Northwest, remain on the trees till the following months of January or February before they fully develop or scatter their pollen.

The male flowers are quite conspicuous, but the female flowers are very small and entirely hidden in the buds until blooming time, and then they merely push out their thread-like crimson-colored styles at the extremities of the buds for fertilization. When fertilized the protruding tops of the pistils wither and disappear, while the nut-bearing parts of the flower remain intact enclosed in the buds awaiting development the following summer.

The nuts vary in shape and may be round, oval, oblong, conical, etc., and often grow in clusters, but each nut is enclosed in a husk varying in length from shorter than the nut to lengths extending beyond. In most varieties, the extended husk opens at the outer edge, but in some it rather contracts than opens, and in the more contracted forms interfere with the husking of the nuts.



POLLEN-PRODUCING CATKIN, OR MALE FLOWER. ARROW POINTS TO FEMALE FLOWER THAT IS FERTILIZED





HOW THE YOUNG SPROUTS  
CLUSTER ABOUT THE  
BASE OF THE TREE

## PROPAGATION

The filbert usually deteriorates from the seed, and other modes of propagation must be employed for perpetuating and multiplying varieties. While varieties may be propagated by budding and grafting, the most common method practiced both in Europe and this country, is by sprouts or

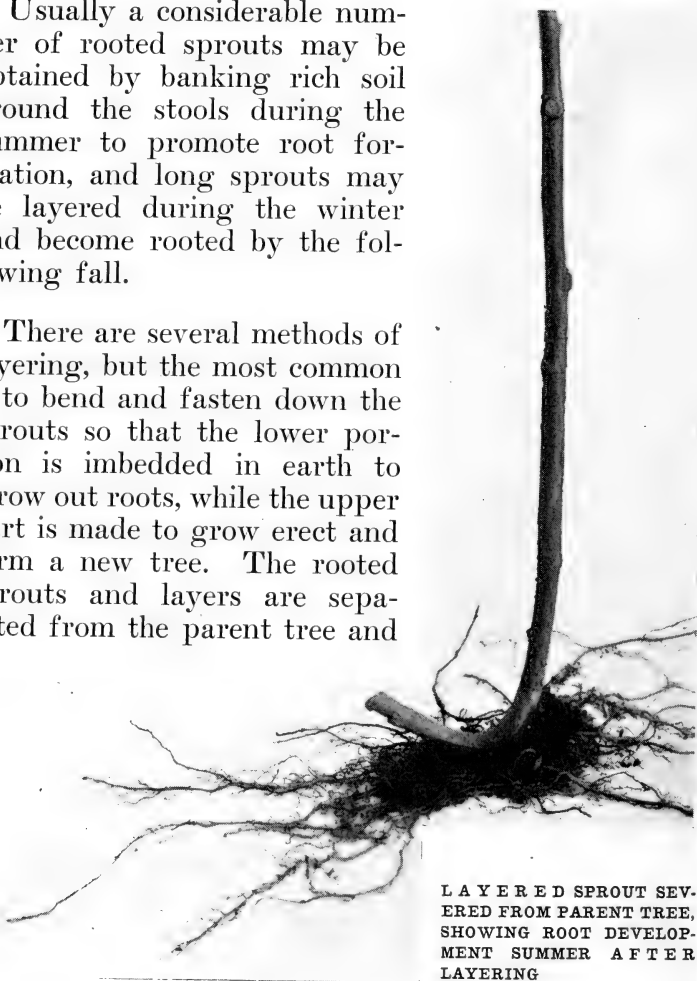


LAYERING THE SHOOTS TO MAKE NEW FILBERT  
TREES BY THE SERPENTINE METHOD

suckers which the cultivated varieties have a tendency to throw out from the base of their stems, and which are taken up and developed into trees.

Usually a considerable number of rooted sprouts may be obtained by banking rich soil around the stools during the summer to promote root formation, and long sprouts may be layered during the winter and become rooted by the following fall.

There are several methods of layering, but the most common is to bend and fasten down the sprouts so that the lower portion is imbedded in earth to throw out roots, while the upper part is made to grow erect and form a new tree. The rooted sprouts and layers are separated from the parent tree and



LAYERED SPROUT SEVERED FROM PARENT TREE, SHOWING ROOT DEVELOPMENT SUMMER AFTER LAYERING

planted in nursery rows about one foot apart, where they are allowed to remain and develop into the size of trees desired for permanent orchard planting. Small trees may be planted into orchard, but larger well-rooted trees are more satisfactory.

## LAND AND LOCATION OF ORCHARD

The climate of the Pacific Northwest is favorable for the filbert (in fact in no other portion of the United States has the filbert met with success), and it will grow on a wide range of land and soil even when moderately poor, so long as it is well drained and deep enough to supply the necessary moisture, for the filbert is a surface feeding plant, but it undoubtedly thrives best on moderately deep, rich and well drained loam. The air drainage does not seem to be so essential with the filbert as with other fruits, as it appears to be less liable to frost injuries than most other kinds of fruit.



ORDINARY NORTHWEST COLD WEATHER DOES  
NOT AFFECT THE FILBERT DURING  
BLOOMING TIME (FEBRUARY)

## PLANTING OF THE ORCHARD

Filbert trees produce a mass of fibrous roots, and transplant well. Fall or early winter is the best season for transplanting filberts, but they may also be planted in the spring. Before planting the orchard, the land should be thoroughly plowed and harrowed and put into good condition. Different varieties of filberts differ in growth and size of trees and are set from ten to twenty feet apart according to variety, quality of land, and the size they are expected to attain. Generally speaking, a distance of sixteen feet is considered ample and not crowded, for the larger European varieties grown in this country. The holes for the trees should be dug sufficiently large to accommodate the roots and the filling in of some good top soil, with the setting of the trees a few inches deeper than they are in the nursery row.



NEWLY PLANTED  
FILBERT TREE

As with most other kinds of fruit, cross-pollination of filberts is beneficial and with some va-



A CLEAN, WELL CARED FOR WESTERN WASHINGTON FILBERT ORCHARD



NURSERY ROWS OF YOUNG FILBERT TREES, SET OUT ADJOINING  
FILBERT ORCHARD

rieties, necessary for satisfactory bearing. Some varieties are more self-sterile than others, but most of them do better mixed than when grown alone.

Very late blooming varieties will not fertilize the early blooming varieties and vice versa. In carrying out this idea, it is best to plant the varieties with all possible regularity. They would pollinize just as well if they were indiscriminately intermingled, but if it is desired to keep the varieties separate, difficulty would be encountered in the picking.

## CARE AND CULTIVATION

While the filbert will stand some neglect, it is well to bear in mind that it responds readily to good treatment, and it pays to give the trees good care and keep the land in good cultivation and fertility. If the soil is deficient in lime, as generally is the case west of the Cascade Mountains, some should be applied; and unless the land is very rich, bearing trees, at least, should bi-annually receive a dressing of barnyard manure or poultry or other fertilizer.

Clean cultivation should be practiced in filbert orchards, excepting as to cover crops, and for that purpose vetches probably give the best results in the Northwest.

Generally speaking filbert trees have in the past had but little systematic pruning in the Pacific Northwest. The trees have done well without much pruning and this has fostered a quite general opinion that filberts needed but little actual pruning. But with older trees and the increasing number and size of commercial orchards, a standard system is recommended.

Up to this time filbert trees have usually been, and probably will continue to be, trained as low standard trees headed from one to three feet high. Some have been allowed to grow in their natural form of several stems, but the one stem or trunk form is generally preferred, being more convenient for care and cultivation.



Felix Gillet, the late pioneer promoter of filbert culture and one of the most renowned horticulturists and authorities on nuts in this country, recommended that "filberts be trained as low standard trees and branched at 18 to 24 inches from the ground and not grown bush-like."

## SHAPING THE TREE



CATKINS (BLOSSOMS) APPEARING  
ON THE YOUNG FILBERT TREE

After a filbert tree has been planted, the first pruning required is to head it to desirable height from 20 to 30 inches, two feet being a good height. During the following summer a number of shoots will grow out near the top of the headed stem, and from these, three or four are selected and trained to form the top of the future tree and the others removed. For the first few years, the top requires more or less attention in way of thinning and shortening of strong shoots to give the tree the proper form and balance.



STURDY FILBERT TREES IN WESTERN WASHINGTON ORCHARD

In the family garden or lawn the filbert might be made to branch at three or four feet. Nothing, indeed, is prettier than a filbert tree headed at that height. Particularly is the purple leaf filbert highly ornamental with its original and brilliant foliage.

Unless wanted for propagation purposes, suckers from the stem and roots should be hoed off in growth during the summer, or in winter be severed from the tree by pruning shears or other sharp cutting tools.

While the filbert likes a reasonable amount of air and sun, it does not require continued sunlight as much as most other fruits and succeeds well in partial shade. For this reason filberts are well adapted for fillers in orchards of walnuts and other strong growing fruit trees. In Kent, England, apples and pears frequently form a dense cover over the filbert trees and yet they produce, but naturally not so freely as those in more open quarters.

In the famous filbert orchards of Kent, the trees are trained in the form of a broad, open and basin-like top on a short trunk, the top having six or more branches which are systematically pruned in winter by thinning the spurs, removing old wood and shortening strong growths, leaving the trees regularly balanced on all sides.

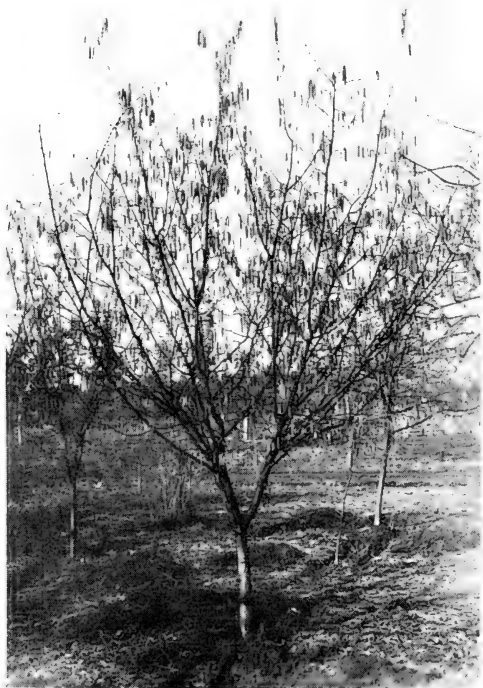
## TIME OF BEARING AND YIELDS

Filberts are generally early bearers and good well-rooted trees usually begin to bear the third year from planting, increasing thereafter with the age and size of the trees.

Usually a few pounds of nuts may be expected from five-year-old trees, and when the orchard is six years old, it begins to pay. With proper care it will go on paying from 50 to 100 years or more. Filbert trees are known to grow very old. For matured trees the average yield is somewhere between 1,000 and 2,000 pounds of nuts per acre. Some orchards, of course, produce more

in single years, due likely to care and favorable conditions during the pollinizing period.

Frequently good four-year-old trees produce four pounds of dried nuts and five-year-old five pounds; seven-year-old sometimes 16 pounds, and



FILBERT TREE COMING INTO BEARING. THIS TREE AT FOUR YEARS PRODUCED FOUR POUNDS

individual eight-year-old trees as much as 33 pounds, but, as before stated, the growing of the filbert is comparatively new here, and with the ex-

perience of the past as a guide to the care, management, pollinization, etc., one may confidently look forward to even better average results.

During the last few years the Northwest grown filberts have retailed at prices varying from 25c to 30c per pound according to variety, size, etc. Considering the limited area adapted to filbert growing in the United States, and the increasing demand, the problem is one of adequate production.

## HARVESTING

In the Pacific Northwest filberts usually are ripe and ready to gather the first part of the month of September. They should not be picked until ripe, a condition determined by the brownish color of the nut, the straw-colored husk and the readiness with which the nuts separate from the husk.

The general practice in the gathering of filberts is to pick them up from the ground instead of from the trees. When ripe and given time, the nuts will fall to the ground of their own accord in most instances, but they usually are hurried off the trees to some extent by shaking the branches gently before each picking.

Usually three pickings will gather the crop.

Nuts with short husk like the Barcelona generally roll out of the husk and drop to the ground clean, but varieties having long husk, such as Du Chilly, require more or less husking to get the

nuts separated. Machines for husking filberts will undoubtedly be perfected and come into general use.

Some varieties such as the Avelines have constricted husk so tight around the nut that they husk with difficulty and are hard to handle in larger quantities.

Filberts are easily dried. When gathered they usually are spread on trays and dried in the sun or other ventilated place in a few days. In wet weather, filberts may be dried artificially in ordinary fruit dryers with heat from 75 to 90 degrees Fahrenheit. Higher heat than 90 degrees is liable to break down the oil and damage the flavor of the nuts.

Filberts are not liable to mould, and they require no washing or bleaching.

When dried sufficiently, the test of which is brittle meat, the nuts are cleaned and polished in a revolving cylinder or other mechanism answering the purpose, and after grading they are sacked and stored in a cool place ready for the market.

Filberts are also gathered with the husk and sold in the fresh state at remunerative prices. For this purpose varieties with long husks are best suited, as they keep the nuts from rolling out so readily as in the short husk.

## INSECT PESTS AND DISEASES

On the Pacific Coast filberts are remarkably free from insect pests and disease. An aphid or plant louse sometimes appears on the foliage, but outside of dropping some honey dew in the leaves and branches, this insect does not seem to do much harm to the trees, and but little attention so far has been paid to it.

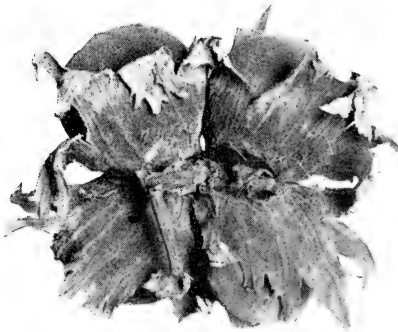
The hazel bud mite has attacked certain susceptible varieties, such as Prolific, Fertile de Coutard, Cosford, Princess Royal and others, and done considerable damage. Fortunately some of our most popular and valuable varieties, such as Barcelona and Du Chilly and others, probably by reason of difference in the construction of the buds, seem to be almost totally immune from the bud mite.

The blight or fungus disease on the eastern American hazel (*Corylus Americana*), which has attacked and killed the European filbert wherever set out in the eastern and southern states, has never been found on the Pacific Coast native hazel (*Corylus rostrata*), nor on any of the European varieties cultivated in the Pacific Northwest.

## VARIETIES

An important point in planting filberts is the selection and assembling of varieties. As none of the native American hazels have developed any varieties worthy of naming, propagating, or growing in a commercial way, we must look to the foreign species for selections and cultivation.

Of all the varieties now tested out, the Barcelona and Du Chilly are the best and most desirable market varieties of which trees in larger numbers may be obtained for planting at the present time.



## SOME OF THE MOST COMMON VARIETIES

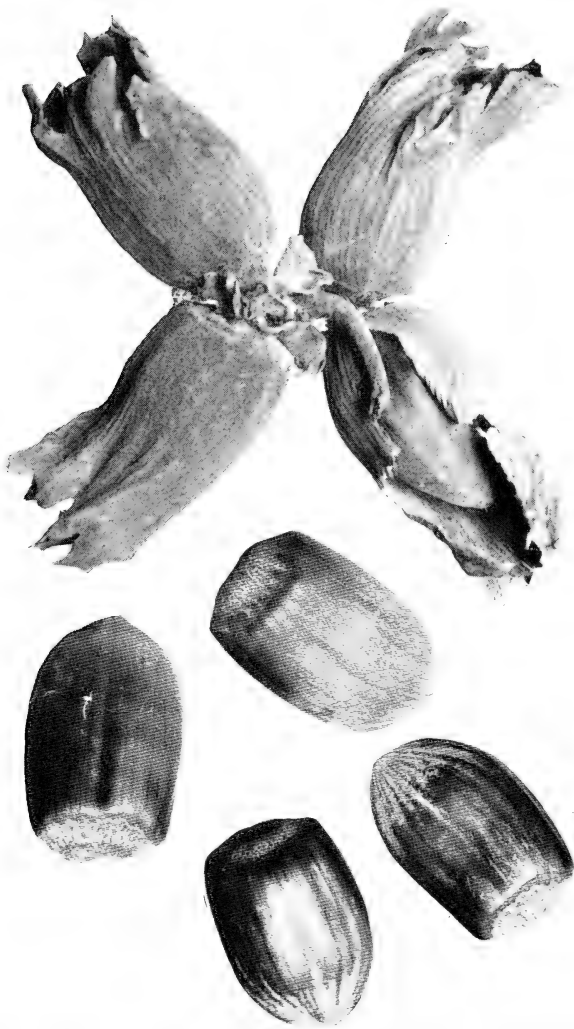
**BARCELONA:** A magnificent variety from Spain; nut very large, round and of first quality; shell moderately thick; strong grower and very prolific. Introduced by Felix Gillet about 47 years ago. One of the best and most popular varieties for planting.



**DU CHILLY:** A fine, large, elongated oval variety with moderately thin shell; nuts uniformly

THE BARCELONA FILBERT IN THE HUSK  
AND READY FOR MARKET (FULL SIZE)





THE DU CHILLY FILBERT IN THE HUSK AND AS IT LOOKS READY FOR MARKET (FULL SIZE)

large, full-fleshed and sweet. The largest nut grown in America, as far as known, over an inch in length and three-fourths of an inch in width; husk longer than the nut; strong, symmetrical grower. Introduced by Felix Gillet about the same time as Barcelona. One of the very best varieties.

**ALGIERS:** Nut much like Barcelona, but somewhat smaller, good bearer.

**KENTISH COB:** Large fruited cob-nut, a good deal like Du Chilly; much grown in England.

**NOTTINGHAM:** Nut medium, oval shaped, good flavored, shell thin, kernel full and fine flavored. A very pretty nut.

**MONTEBELLO:** Nut medium, roundish, full kernel, good flavored, very prolific.

**NOS LUNGHE:** A beautiful variety; nut large, shell thick, kernel sweet and good flavored; husk long and slightly constricted preventing the nut from rolling out.

**PEARSON'S PROLIFIC (Grandis):** Nut large, short, good quality, thick shell, short husk, considered the true Barcelona nut of commerce.

**MERVILLE DE BOLWILLER:** Nut large, round at the base tapering to a point, fine flavor.

**RED AND WHITE AVELINE:** Nuts medium, ovate; long constricted husk; kernel with either

wine-colored or white skin, hence the name—Red and White Aveline; flavor sweet and good; very prolific. Trees are not strong growers.

**PURPLE-LEAVED AVELINE:** A very pretty, ornamental variety, the leaf being of a dark purplish hue, looks beautiful. The nut is like other Avelines.

Many other varieties of more or less value might be mentioned, but with the difficulty of obtaining trees for planting it would be of but little practical use.

## USES OF FILBERTS

The chief uses of filberts are as food, mainly for desserts and confectionery. They may also be converted into a valuable oil, which doubtless when more are grown will become an article of commerce.

The filbert is not known and appreciated as it deserves to be. The Northwest grown filberts certainly are excellent nuts, mild and fine in flavor, and the more familiar the people become with them, the better they will like them and the larger will be their consumption, not to mention the fact that the use of nuts generally is increasing and in many cases taking the place of meat in dietary. Considering the limited area adapted to filbert growing, there is no danger of over-production.

## PERSONAL EXPERIENCE

My attention was first drawn to filberts by an article on filbert culture in America, written by

Prof. H. E. Van Deman about 24 years ago. Prof. Van Deman organized and was the first head of the division of pomology in the department of agriculture, Washington, D. C., and he served as a judge of exhibitions of nuts and fruit in practically every state in the Union and at all the national expositions since 1876 to the time of his death, in 1915.

In this article Mr. Van Deman described the almost universal failures to grow filberts in various eastern and southern states and ended by saying, that before giving up all hopes of growing filberts in the United States, they should be tried in the territory about Puget Sound, Washington, where the climate is similar to that of Kent, England, famous for its fine filbert orchards.

Being of an experimental mind, I sent to Felix Gillet for a few trial filbert trees in February, 1894, and planted them in Western Washington. Among these were two Du Chilly trees, which proved to be the first trees of that variety brought to the Northwest. In later years I have added other varieties, including the valuable Barcelona, and the development and fruiting of these experimental trees were closely watched.

While my plantings were limited, the indications plainly showed the climate to be highly favorable to the development of the trees and at the same time the yield and quality of the nuts of some varieties proved decidedly encouraging.

In 1908, I had tested out about ten varieties, more or less, with differing results; many for various reasons proved unsatisfactory and disappointing, while Barcelona and Du Chilly indicated great possibilities for filbert culture in the Pacific Northwest.

Numerous small plantings of filberts had also been made in various parts of the Northwest with similar results. It became evident that upon the selection and assembling of the right varieties, depended the success or failure of growing filberts in the Northwest. With the limited filbert growing in the East, but little information on the subject of varieties could be obtained outside the experience and recommendations of the late Felix Gillet of Nevada City, California, from whose importations and distributions the most of the desirable varieties of filberts now grown in the Pacific Northwest may be traced.

For the purpose of determining the relative commercial value of the various varieties grown in other filbert producing countries and their adaptability to the conditions existing in the Pacific Northwest, I then began to assemble my now large collection of filberts, which in 1916 numbered about four dozen different varieties from most of the filbert growing countries of the world.

About 25 varieties have now been quite well tested out, and while I have some very promising other varieties, I think Barcelona and Du Chilly so far are unsurpassed for commercial planting.

## CONCLUSION

In conclusion I will say the filbert culture is fascinating; it combines pleasure and profit. Filberts are not perishable and do not require an immediate market, and with practically none produced in the East, and with an ever-growing demand there is a ready market for all the filberts that may be produced in the Northwest for years to come.

To me no other horticultural industry looks more promising than filbert culture in the Pacific Northwest, and particularly in the Puget Sound region, especially north of Seattle, where the weather conditions are so favorable, the bearing of certain varieties is good and regular, and the size and quality of the nuts are not surpassed in any country.

A handwritten signature in cursive script, reading "A. A. Quamberg". The signature is written in dark ink and is positioned in the lower right quadrant of the page.



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