

*CAPITOLS SINGULARS DELES LLAUORS QUE
DEURAS SEMBRAR:*
A LATE MEDIEVAL PLANTING GUIDE FOR THE
SPANISH LEVANT

THOMAS M. CAPUANO

Gabriel Alonso de Herrera, whose treatise *Obra de agricultura* (1513) has long been considered the first original writing on agriculture in the vernacular in Spain, cites in his "Prologo" four reasons why his critics and detractors scorned his undertaking. First, there was the argument that the Latin authorities, who perforce served as sources for any would-be compendium on agriculture, wrote about the subject in accordance with the rules governing the soil and climate of Italy, and, since these differed substantially from those of Spain, were therefore useless.¹ Second, some considered any written or scholarly approach to agriculture as superfluous and suspect. Herrera writes "I'm not surprised at the murmurings of those who say that any rude peasant knows more about the labors of the field than did Columella, Pliny, Cato, Palladius, and the great Marcus Terentius Varro"; one notes reflected in these words the disdain felt by noblemen and Conquistadores toward both the lowly farmer and the lofty Latin texts of the classic writers on agriculture.² Third, there were those who argued that "the precepts of agriculture cannot be made an art";³ i.e., could not be codified, implying perhaps that agriculture, like, say, shoemaking, fishing or sewing did not merit the prestige that attached in those times to being put down into writing. Such detractors further claimed that "nothing ever written about [agriculture] serves any good use."⁴ Finally there were those who argued "Why write it down, since farmers can't read anyway?"⁵

¹ «Por ende reprehenden esta obra algunos que poco miran y calan las cosas. No carecen deste error algunos letrados que dizen que las reglas de los agriculturoes que en ytalia scriuieron, no pertenecen ala region de espana: o por la disconformidad de la tierra, o por la discordancia o de clymas o de estrellas que de vna manera influyen en vnas regiones, y de otra manera obran en otras» (2r).

² «No me espantan murmuraciones de otros que dizen que mas sabe qual quier rustico labrador en las cosas del campo que supieron columella, plinio, caton, paladio, y aquel doctissimo marco terencio varron» (2v).

³ «Esto digo por que avn ay otros que dizen que ni los preceptos de agricultura se pueden traer a arte» (2v).

⁴ «no aprouecha cosa alguna quanto dello se scriue» (2v)

⁵ «para que se scriue pues los labradores a quien esto mas pertenece no saben leer» (2v).

These arguments go a long way toward explaining why, before the end of the Middle Ages, there is very little original writing on agriculture. Notable exceptions stand out, such as Walter of Henley's *Husbandry* in thirteenth-century England (Lamond xxi-xxii), Gottfried's *Pelzbuch*, in fourteenth-century Germany (Eis 19), and Crescenzi's *Trattato della agricultura* (1304) in Italy (Olson 35), but even the earliest of these comes after a hiatus of nearly 1,000 years, following the *Opus agriculturae* of Palladius at the close of the classical period.⁶ In Spain much original writing on agriculture was carried out by the Spanish Moors (Ibn al-Bassal, Ibn al-Awwam, Ibn Wafid)⁷, but it has long been the belief that no original texts on agriculture were written by Spaniards before Herrera, and certainly not in the vernacular.

However, two witnesses have recently been discovered, both in 15th century manuscripts, of a text which by its *incipit* might be titled *Capitols singulars deles llauors que deuras sembrar* ("Chapters one-by-one of the seeds which you should sow"), and which seems to suggest that a school of native agronomists flourished in Spain in the 15th century or earlier, well over a hundred years before Herrera, perhaps inspired by the example of their former Arabic masters. Neither witness has been the object of study before now. The intention of the present writing is to bring this text to the fore in the hope that it may serve as a model against which future textual discoveries may be compared, and in the hope that greater scrutiny by agricultural historians may establish its proper place in history.

The agricultural menology, i.e., the ordering of planting and harvesting instructions by the months of the year (and by other astrological considerations within each month) has been a respected tradition in agricultural writing for centuries and even millenia. The ease of composing such chronological calendars, and the ease of grasping and implementing such logic, has no doubt ensured the survival of this type of writing, especially among non-scientists and the uneducated, right up to the yearly supermarket almanacs of our own times. In the Iberian peninsula this tradition can be traced back through the almanac tradition of the *Lunario y pronóstico perpetuo general y particular* by Jerónimo Cortes, first published in 1594 and with more than 50 subsequent and updated editions into the twentieth century; through to Book 6 of Gabriel Alonso de Herrera's *Obra de agricultura* (1513), which summarizes the monthly labors by waxing and waning moon; through Pietro de Crescenzi's *Opus ruralium*

⁶ Palladius wrote in the mid 5th century, according to most scholars (see Frezouls 194).

⁷ See Millàs Vallicrosa for bibliography on these Arabic writers.

commodorum (1304), through the Arabic writers on agriculture such as Ibn al-Awwam's *Kitab al-Felaha* (12th-13th c.), Ibn Wafid (11th c.) and the *Calendar of Cordova* (10th c.); through Palladius's *Opus agriculturae* (5th century), to Book II Chapter 2 of Columella's *De re rustica* (1st century A.D.) and finally back to the lost Greek *Geoponika*, at least as it is preserved in translation. All these works contain at least a section in which the agricultural labors of the year are treated month by month. Many other examples of the sequential treatment of the yearly agricultural labors could be given from scientific, literary and artistic sources.⁸

Yet another type of agricultural menology is represented by the present edition. This is an extremely brief and eminently practical month-by-month prescription of the times and seasons for sowing, planting and transplanting (and some harvesting) of numerous crops (vegetables predominating, with grains, fruit trees and herbs besides) contained in two fifteenth-century Iberian manuscripts. The text is anonymous, bears neither toponyms nor anthroponyms, is remarkably devoid of superstitious elements and shows no evidence of translation. We suppose it to have been composed originally in the vernacular –not translated from Latin or Arabic– as a handy planting guide for farmers and estate-owners in eastern Spain. One version is written in Spanish and the other in Catalan. While these two versions are the only known texts of this "menology" type, they are closely related to several other opuscles on agriculture dating from the same period which likewise originate in the Spanish Levant: seven chapters on diverse agricultural topics,⁹ the *Mamòria de les maneres de les laurons* ("Account of diverse crops")¹⁰, and the *Tractat* of BCB 754.¹¹

⁸ See José Simón Díaz 9: 83-86 for a complete list of the many editions of the *Lunario*. Crescenzi's menology occupies his Book 12 (see Rossi 3: 310-328). For Ibn Wafid, see the ed. by Millàs Vallicrosa of the Old Spanish trans. of this 11th c. Toledan scholar and doctor, whose calendar appears in fragmentary form in this unique ms. (322-324). For Ibn al-Awwam, see Banqueri I: 476-489. For the *Calendar of Cordova* see Dozy. For Columella's menology, see Álvarez de Sotomayor 2: 117-138. For the menology of *Geoponika* as preserved in Arabic translation, see Vázquez de Benito (10: 220). An example from literature of the agricultural menology tradition is the well-known 13th-century *Libro de Alexandre* stanzas 2390-2402, which describe the labors of each month as they are depicted on decorative tapestries lining the inside of the royal tent of Alexander the Great (Alvar 199-200). See also Pero Mejía's explication in his *Silva de Varia Lecion* (1570) of the traditional depiction of the twelve months of the year and their agricultural associations (2: 369-371).

⁹ On arboriculture, weather prognosis, seed storage and sowing, contained in BN Madrid MS 10211 beginning at folio 210r25 (Capuano 1987).

¹⁰ The *Mamòria* is contained in a codex in the private collection of the American Hispanist Joseph Gwara. A fragment of this *Mamòria* can also be found in BN Madrid MS 10.211 ff. 213-214r18; see Capuano 1994.

¹¹ The *Tractat* is an unpublished miscellany of agricultural instructions contained in Biblioteca de Catalunya - Barcelona MS 754. An edition of this text is in preparation by

The menology taken together with these other opuscles on agriculture attests to the fertility and prosperity of the *huerta* area around València, and to a flourishing culture of agricultural development in the Kingdom of Aragon in the fifteenth century and before.

The Catalan version is the better preserved of the two and so is used as the base text for this edition. The Spanish version, which may be a translation from the Catalan, has been consulted and its variant readings registered in the critical apparatus below. The Catalan text begins on folio 95r (line 15) of manuscript number 6437 of the "Fons Serrano Morales" housed in the Biblioteca Serrano Morales of the Municipal Library of València, Spain, and extends just two folios to 97r17. The Spanish version occupies folios 214r19 to 218r11 of manuscript 10.211 of the Biblioteca Nacional of Madrid. Both versions appear, along with various other minor works on agricultural topics, at the end of a fifteenth-century copy of Ferrer Sayol's translation (1385) of Palladius's *Opus agriculturae*. Although the *Capitols singulars* may be a later accretion in this compendium of agricultural writings, Sayol's mention of consulting other "palladios arromançados" (Capuano 1987 181v14-15) suggests an intense interest in agricultural writing in the late fourteenth-century, and it is perhaps to this period that the present text owes its existence.

Although I have already published the Spanish version in my semi-paleographic edition of manuscript 10.211 (Capuano 1987), this manuscript copy is deficient and cannot stand alone as our sole witness to this curious medieval planting calendar. Most significant in this regard, the Spanish version fails to give the headings which would indicate the months during which the prescribed labors should be performed. To further complicate our reading of this text, the scribe of ms. 10.211 fails to separate the text from the other minor works that precede and follow it. Indeed, it is only in light of the Catalan text that we can discern the presence, in the Madrid manuscript, of the same text in its Spanish version. However, because the physical condition of the Catalan manuscript renders the text almost illegible in places, the Spanish version, despite its deficiencies, has been indispensable in establishing the present reading.

To facilitate its consultation by modern scholars I have taken a number of editorial liberties with the Catalan text. Punctuation has been modernized (but not spelling), capitalization and non-capitalization have been standardized as per modern conventions, and

Joseph Gwara. It begins with a one-page table which summarizes in a month-by-month layout the instructions contained in the *Tractat*, but the *Tractat* itself is not ordered menologically.

calderons (symbols used to indicate paragraphs) have been removed. Column boundaries have not been respected. Although the enumeration of many crops is presented in list-form at the left margin, with instructions regarding their cultivation given in a separate column in the middle of the page, this layout is not reproduced below, but with no loss of meaning. Word and morpheme boundaries have not been modernized. Line numbers have been added for ease of reference to critical apparatus. My expansions of scribal abbreviations are indicated by underlining, and editorial corrections have been indicated by italics. The rationale for the latter should be sought by line number in the brief critical apparatus. Finally, an English translation has been provided at the end.

*CAPITOLS SINGULARS DELES LLAUORS QUE DEURAS SEMBRAR
ENTOT LANY CASCUN MES*

- 1 Capitols singulars deles llauors que deuras
sembrar entot lany cascun mes
Janer
Ciurons sembraras en la minuant luna de giner y tot altre legum
5 saluant | fesols. Los millors çiurons sembraras en luna minua de febrer. |
Cebes *pera* llauor fan a plantar en luna creixent de giner y deuen esser elegides gro- | sses y que no hagen sino hun groell o ij o iij y no pus auant, car com mes graells | hauran,
10 valen menys; solament fan lauor de çebes porreres. Y quant les planta- | ras fes les prop dels graells ij talls fets en creu. |
Alls plantaras enterra magra y nols cal molt regar.
Auena mesclada ab los grans | de ordi pots sembrar enla luna noua, | [*empero tant tost que sea sembrada faze luego a rregar*].
15 Carabaços | Cogombros [*tempranos*] | poras sembrar en aquest mes de giner en la luna noua y hauras | planta primerench. |
Comins, | llauor de porros, | llauor de albarginies |
20 poras sembrar enla luna creixent diginer. |
Llauor de çeba sembraras en lluna minua, mas al plantar no guarts luna. |
Arros fa a sembrar ala exida de aquest mes en luna mjnua. |
Ceba redona fa en aquest mes a tresplantar. |
25 [fol. 95v] Erbolam, | cols, | bledes, | almols, | spinax, | ciurons | sembraras en luna mjnua. |
[*Cebolla rredonda se deue trasplantar en aqueste mes.*]

Febrer

Linós se sembrara en febrer car es millor que de tot lany
 30 empero quela llauor sia | stada de lli que sera stat del
 yuern passat y sil sembres en yuern la llauor sia del estiu |
 passat. |

Alfalç' pots sembrar ab alguns grans de ordi en camp
 que sia ben llaurat. |

35 Empeltar arbres, sembrar çeliandre en luna noua. |

Març |

Melons, | cogombros, | albudeques, | auena, | dacça, |
 çeba, | fesols | poras sembrar en lluna mjnua. |

Llaur de cols, | rauens, | en llua vella. |

40 Fesols, | adacça, o tramella | poras sembrar en lluna noua. |

Empeltar figueres, o altres arbres en lluna mjnua. |

Maig |

Oliuera se pot empeltar en lluna noua. | Alberginies, | ceba
 redona | se deuen plantar en lluna noua. | Mostalla cull hom en

45 aquest mes y les altres sements dells plantes. Nous confites |

pots fer en aquest mes. | Mill, | paniç, | alquena, | llauor de
 col | sembraras en lluna noua. |

[fol. 96r] Juny, | Joliol |

Naps sembraras en Joliol empero que la terra sia humo-
 50 renca y temprada de pluja. | Pastanagues: sembraras la llauor en-
 terra polsosa y en lluna mjnua y tantost fan ha | regar, y fa a
 sembrar ben clara. Fan ha regar de iij en iij dies fins que sien
 exi | des. | Cebes, | cols, | porros | fan a tresplantar en Joliol.
 | Llaur de cols fa a sembrar peral setembre. |

55 Agost |

Spinax sembraras per tal manera: hages llauor vella de espinax
 y metras la en hun | canter y ompliras lo canter daygua y remullar-
 as iij o v dies y trauras la del | canter y leixala exugar al sol
 no deltot y sembre las. Tantost exiran ab quel loch | sia ben

60 femat. | Letuges fan sembrar. | Canem fa a collir. |

Setembre |

Ordi sembraras pera ferratja y pera messes. | Alberginies:
 pren la alberginia ben madura y fendras la | en quatre parts

65 per llonch y pendras la pasta qui es dins y fora gitaras | la

paradura y aquella pasta remullaras enaygua per viij o x
 jorns y trauras | los graus dela pasta y llaur los has ab
 aygua y exugaras lo al sol y quant seran | ben sechs

estochals pera sembrar en lo mes de giner. | Cogombros: pren
 la llauor y fes ne semblant deles alberginies. | Ceba poras

70 sembrar en aquest mes dela sement, y rauens. |

Octubre |

Ferratge poras encara sembrar y quant lo hauras collit poras
 hi sembrar dacça o mill. | Faues poras sembrar. | Spinax
 poras sembrar dela llauor vella y si non has de vella poras
 75 sembrar dela | nouella remullada axi com damunt hauem dit,
 car no li noura res puix sent | miquel sia passat. | Herp
 pots sembrar en aquest mes. |
 [fol. 96v] Nohembre |

Arbre que pert fulla se pot his deu tresplantar en aquest
 80 mes [mas que en otro tiempo del anyo]. |

Rosers, | saluja, | ruda, | noguer, | amenler | poras
 ora tresplantar en lluna mjnua. |

Ordi, | faues, | segol | en llua que sia noua. |

Arbres que tenen fulla, | terongers, | limoners, | lorers,

85 [sipres], | oliuera y semblants | fan ora a tresplantar en la
 luna creixent prop de plena. |

Alls, | letugues | en luna mjnua. |

Dehembre |

Carabaçes primerenques sembraras per tal manera: faras
 90 hun gran clot llarch y estret | y fondo fins al genoll y sia
 en lloch que haia abrich y defensio dela tremuntana y dins |

lo clot metras fems de estable fins al mig lloch y sobre
 aquells fems de estable posaras | altres fems de bassa ben

95 podrits y calçigaras los huna gran estona com millor poras |

que sien ben pijats y ompliras aquell clot de aygua y quant
 sia ple tul leixaras | star fins al altre dia y quant los

fems se hauran beguda laygua, ab huna estaqua | de fust tu
 faras forats en aquells fems hun palm luny lo hu del altre y

en cascun | forat metras dos graus de carabaçes. |

100 Axi mateix poras metre dins lo clot dos graus de melons y
 dos graus de albargi- | nies y de cogombros dins cascun forat

que faras ab la estaqua y com hauras sem- | brades les dites
 llauors axi carabaçes com los altres sements cobriras denit

105 lo clot | ab estores o rama o altres coses conujnents y de
 dia tuls descobriras porque lo sol los pu- | ga ben ferir.

Empero si de dia no feya sol sino que neuas o fes gelada o
 vent fret | de tremuntana no fan ha descobrir y en aço ha

mester diligencia car huna mati- | nada de fret fara perdre
 tot lo maltret passat y nols cal molt regar souint si donchs

110 | no veyes que la cara dels fems fos molt exuta, o que no hagues
 plogut. |

Ceba redona sembraras en aquest mes de dehembre en la luna
 mjnua en lloch que | [fol. 97r] sia ben humit y regat y que y

115 fa gran dampnatge mas po- | ras lo cobrir ab palla de

[*paniç] o semblant. |

Forment, | ordi, | espelt, | guixes, | pesols | [*podras sembrar en poluo. Ca non se lo prescian si bien la tierra es vmjda.*] | Almolls, | lauor de cols, | bledes, | spinax |

120 poras sembrar en luna mjnua tots justats en huna era. | Alls, | celiandre | sembraras en luna mjnua. Mes val sembrar çeliandre en giner | o en febrer |

Cebes redones pera llauor pots ara plantar y guarda que | hagen pochgs graells | ço es que non hagen mes de hu o ij |
125 car aquells que han molts fan la llauo de çe- | bes porres, y | fan a plantar tantost com començen a grillar y fals hom | huna creu | ab coltell en la part dels graells.

APPENDIX I: CRITICAL APPARATUS

M = Madrid (Biblioteca Nacional MS 10.211)

V = València (Biblioteca Municipal, Fons Serrano Morales MS 6437)

11: *V* los.

14-15: *M* 214v7-8.

16: *M* 214v9.

17: *V* planter.

27: *M* 214v25.

29: *V* sembra ara.

35: *M* Enxerir arboles | Celiandre en luna nueua.

39: “luna vella” is “luna nueua” in *M* 215r21.

40: *V*: a dacça.

44: *V* empelter, *M* plantar.

42: Neither *V* nor *M* have a chapter for April. Agricultural instructions for the month of April are typically quite sparse. If they were just as short in *V*, perhaps the scribe accidentally skipped them. It is likewise possible that the scribe neglected to indicate that April and May share the same tasks, as do June and July in this text.

63: After the words “fendras la” *V* has, crossed out by the scribe himself, “en hun canter y ompli- | ras lo canter.” This is a repetition of part of line 52.

80: *M* 216v12.

85: A second, later hand inserted “sipres.”

104: *V*: coujnents.

114: *M*: 217v14-15.

117-119: Blurring has rendered *V* almost completely illegible here, so the text of *M* is inserted. However, the end of the sentence is clear enough in *V* to read “si be la terra *no* es humida,” contradicting *M* and the idea of planting in dry soil.

APPENDIX II: TRANSLATION

THE CHAPTERS, ONE BY ONE, OF THE SEEDS YOU SHOULD SOW THROUGHOUT THE YEAR IN EACH MONTH.

January. Garbanzos you shall sow in the waning moon of January, and all other legumes except beans. The best garbanzos are sown in the waning moon of February. Onions for seed crop should be planted in the waxing moon of January and the fat ones should be chosen, and they should only have one or two or three shoots and no more, because the more shoots they have the less they’re worth, producing only seed for leek-like onions. And when you plant them make two small cuts near the shoots in the shape of a cross. Plant garlic in weak soil; it doesn’t need to be irrigated much. Oats mixed with barley seed can be sown in the new moon, [but as soon as they’re sown irrigate them]. Squash and [early] cucumber can be planted in this month of January in the new moon and you’ll have early yields. Cumin, leek seed and eggplant seed can be sown in the waxing moon of January. Onion seed should be sown in the waning moon but when setting them out the moon doesn’t matter. Rice should be sown at the end of the month in waning moon. Round onions should be transplanted in this month. Salad greens, cabbages, chard, orache, spinach, and garbanzos should be sown in waning moon. [Round onion should be transplanted in this month.]

February. Linseed is sown now in February because it’s better than anytime in the year, although be sure the seed is from flax from the previous winter, and if you sow it in winter be sure the seed is from the previous summer. Alfalfa can be sown with a few grains of barley in well-worked soil. Graft trees, [sow] coriander in the new moon.

March. Melons, cucumber, gourds, oats, sorghum, onions, and green beans can be sown in the waning moon. Cabbage seed and radishes in the old moon. Green beans and sorghum or spelt can be sown in the new moon. Graft fig trees or other trees in waning moon.

[April] May. Olive trees can be grafted in the new moon. Eggplant, round onions should be planted [in the new moon]. Mustard is picked in this month and other plant seeds. Candied walnuts can be made in this month. Millet, Italian millet, henna and cabbage seed should be sown in the new moon.

June, July. Turnips should be sown in July, but be sure the soil is humid and tempered by rain. Carrots should be sown in loose soil and in waning moon, and water them immediately, and sow them sparsely. Water them every third day until they have sprouted. Onions, cabbages and leeks should be transplanted in July. Cabbage seed should be sown for September.

August. Spinach should be sown like this: take old seed from

spinach and put it in a container and fill the container with water and let it soak for four or five days and take it out of the container and let it dry in the sun but not completely, and sow it. They will sprout immediately, as long as the ground is well fertilized. Sow lettuce. Harvest hemp.

September. Barley should be sown for forage and for grain. Eggplant: take the well-ripened eggplant and cut it in four parts lengthwise and take the paste inside and throw away the peel and soak the paste in water for eight to ten days and take the seeds out of the paste and wash them with water and dry them in the sun and when they are well dried store them to sow in the month of January. Cucumbers: take the seeds and do as with eggplants. Onions can be sown in this month from seed, and also radishes.

October. Forage crops you can now sow and when you have mown it you can sow maize or millet. Beans can be sown. Spinach can be sown from old seed, and if you don't have any old you can sow new seed, soaked just as we said above, because nothing will damage it after Michaelmas has passed. Vetch can be sown in this month.

November. Trees that lose their foliage can and should be transplanted in this month. Rose bushes, sage, rue, walnuts and almonds can now be transplanted in waning moon. Barley, beans and rye in new moon. Trees that keep their foliage, orange trees, lemon trees, bay-laurel, olive and similar trees trasplant in waxing moon close to full. Garlic and lettuce in waning moon.

December. Early garbanzos should be sown like this: make a large hole, long, narrow and knee-deep, and make it in a sheltered place, protected from the north wind, and fill the hole half-full with stable manure, and on top of the stable manure put well-rotted pond waste and trample it for a good long while as best you can, so that its well stomped down and fill the hole with water, and once filled let it sit till the next day. And when the manure has soaked up the water, with a wooden stick make holes in the manure, one hand-length away from each other, and in each hole put two garbanzo seeds.

In the same way you can put in the hole two melon seeds and two eggplant or gourd seeds and in each hole that you make with the stick, and once you have sown the aforesaid crops both garbanzos as well as the other seeds you should cover the hole with matting or branches or other things handy and during the day you should uncover them so the sun can warm them well. However if the day is not sunny, or if it snows or frosts or the North wind blows do not uncover it and be very careful in this regard because one morning of cold will cause you to lose all your work, and you should not water them much unless you see the surface of the manure dry out or unless it does not rain.

Round onion you should sow in the month of December in

waning moon in a humid and well-watered spot, and it should be well-manured. They should be watered often. The cold will damage them greatly but they can be covered with straw from Italian millet or similar material.

Wheat, barley, spelt, vetch and peas [you can sow in dry soil, because they aren't valued if planted in humid soil.] Orache, cabbage seed, beets, spinach you can sow in waning moon all together in the same bed. Garlic, coriander should be sown in waning moon, but it's better to sow coriander in January or February.

Round onions for seed can be planted now and see that they put out few stalks, that is, they should not have more than one or two because those that have more produce seed of leek-like onions, and plant them as soon as they start to sprout and make a cross on them with a knife where the stalks emerge.

APPENDIX III: TENTATIVE GLOSSARY OF PLANT NAMES

All scientific names given here are taken from Alcover; English equivalents followed by the symbol "(P)" are taken from Polunin, "(G)" from Grieve. This glossary is not meant to be precise, since many different species and often various genera shared and often even exchanged denominations in the Middle Ages, depending on locale and numerous other factors.

- adacça* - sorghum (P), *Sorghum vulgare*.
- alberginia* - eggplant (P), *Solanum esculentum* Dun.
- albudeca* - [a sort of tasteless, watery melon].
- alfals* - alfalfa (P), *Medicago sativa* L.
- all* - garlic, *Allium sativum* L.
- armolles* - orache (P), *Atriplex hortensis* L., or all-good (P), *Chenopodium Bonus Henricus*.
- alquena* - henna (G), *Lawsonia inermis*.
- ametler* - almond tree, *Amygdalus communis* L.
- avena* - oats, *Avena sativa* L.
- bleda* - chard, *Beta vulgaris cicla* or beet, *Beta vulgaris rapacea*.
- canem* - hemp, *Cannabis sativa* L.
- carabassa* - pumpkin, squash, gourd; either *Cucurbita* or *Lagenaria*.
- ceba* - onion, *Allium cepa* L.
- celiandre* - coriander, *Coriandrum sativum* L.
- ciuronera* - chickpea, *Cicer arietinum* L.
- cogombre* - cucumber, *Cucumis sativa*.
- col* - cabbage, *Brassica oleracea* L.
- comi* - cumin, *Cuminum cyminum*.

dacça - sorghum, *Sorghum vulgare*.
espelta - spelt, *Triticum spelta* L.
ferratge - forage, grasses, fodder.
fesol - bean, *Phaseolus vulgaris* L.
figuera - fig tree, *Ficus carica*.
forment - wheat, *Triticum aestivum* L.
guixa - chickling pea (P), *Lathyrus sativus*.
herbolam - a mixture of various edible potherbs, such as spinach.
erb - vetch, *Ervum ervilia* L.
letugues - lettuce, *Lactuca* sp.
limoner - lemon tree, *Citrus limonum*.
melo - melon, *Cucumis Melo*.
mill - common or broom-corn millet (P), *Panicum miliaceum*.
mostassa - mustard, *Sinapis alba*.
nap - turnip, *Brassica napus*.
noguer - walnut tree, *Juglans regia*.
nou - walnut, fruit of *Juglans regia*.
olivera - olive tree, *Olea europaea*.
ordi - barley, *Hordeum vulgare*.
pastenaga - carrot, *Daucus carota*.
panis - foxtail or Italian millet (P), *Setaria italica*.
pesol - pea, *Pisum sativum*.
porro - leek, *Allium porrum*.
rave - radish, *Raphanus sativus*.
salvia - sage, *Salvia* sp.
segol - rye, *Secale cereale*.
tramella - here, apparently a synonym of *espelta*.
taronger - orange tree, *Citrus* sp.

THOMAS M. CAPUANO
 TRUMAN STATE UNIVERSITY

WORKS CITED

- ALCOVER, Antoni. *Diccionari Català-Valencià-Balear*. 10 vols. Palma de Mallorca: Ed. Moll, 1988.
 ALVAR, Manuel, ed. *Poesía española medieval*. Barcelona: Planeta, 1969.
 ÁLVAREZ DE SOTOMAYOR RUBIO, Juan María, trans. *Los doce libros de agricultura que escribió en latín Lucio Junio Moderato Columela*. 2 vols. Madrid: Miguel de Burgos, 1824.
 BANQUERI, José, trans. *Libro de agricultura*. By Ibn al-Awwam. 2 vols. Madrid, 1878.

- CAPUANO, Thomas, ed. *Libro de Palladio: Biblioteca Nacional - Madrid MS 10.211*. Madison, Wisconsin: Hispanic Seminary of Medieval Studies, 1987.
 ---. "The Agricultural Texts Appended to the Fourteenth-Century Iberian Translations of Palladius." *Manuscripta* 38 (1994): 253-263.
 DOZY, R. *Le Calendrier de Cordoue*. Leiden: E. J. Brill, 1961.
 EIS, Gerhard. *Gottfrieds Pelzbuch*, Brunn: Rudolf M. Rohrer, 1944.
 FREZOULS, Edmond. "La vie rurale au Bas-Empire d'après l'oeuvre de Palladius." *Ktema* 15 (1980): 193-210.
 GRIEVE, M. *A Modern Herbal*. 1931; New York: Dorset Press, 1992.
 HERRERA, Gabriel Alonso de. *Obra de agricultura (Alcalá, Arnao Guillén de Brocar, 1513)*. Introduction and anthology by Thoms F. Glick. Valencia: Hispaniae Scientia, 1979.
 LAMOND, Elizabeth, ed. *Walter of Henley's Husbandry*. London: Longmans, Green and Co., 1890.
 MEJÍA, Pedro. *Silva de varia lecion*. 2 vols. Madrid: Sociedad de Bibliófilos Españoles, 1933-34.
 MILLAS VALLICROSA, José María. "La traducción castellana del *Tratado de agricultura* de Ibn Wafid." *Al-Andalus* 8 (1943): 281-332.
 POLUNIN, Oleg. *Flowers of Europe*. London: Oxford Univ., 1969.
 ROSSI, Bastiano de, trans. *Trattato della agricultura di Piero de Crescenzi*. 2 vols. Milano: Classici Italiani, 1805.
 SIMÓN DÍAZ, José. *Bibliografía de la literatura hispánica*. Madrid: CSIC, 1971. Vol. 9.
 OLSON, Lois. "Pietro de Crescenzi: The Founder of Modern Agronomy." *Agricultural History* 18 (1944): 35-40.
 VÁZQUEZ DE BENITO, María Concepción. "El manuscrito n° XXX de la Colección Gayangos." *Boletín de la Asociación Española de Orientalistas* 9 (1973): 73-124, 10 (1974): 215-307.