Toward a Global History of Soil

Sciences, Practices, and Materialities, 1300–1750

AGRICULTURE AND THE MAKING OF SCIENCES

Edited by
Justin Niermeier-Dohoney and Aleksandar Shopov

BRILL

Toward a Global History of Soil

Agriculture and the Making of Sciences 1100–1700

TEXTS, PRACTICES, AND KNOWLEDGE TRANSMISSION IN ASIA

VOLUME 1

Series editors

Dagmar Schäfer, XU Chun, Bethany J. Walker
and Aleksandar Shopov

The titles published in this series are listed at *brill.com/amos*

Toward a Global History of Soil

Sciences, Practices, and Materialities, 1300–1750

Edited by

Justin Niermeier-Dohoney
Aleksandar Shopov

BRILL

LEIDEN | BOSTON

Cover illustration: The cover image refers to a story that stresses the importance of the quest (talab). The painting is also a portrayal of activities related to agriculture and soil, from the plowing of a field to the weighing of harvested melons.

Farid al-Din ʻAttar, *Shaikh Mahneh and the Villager*, fol. 49r from *Mantiq al-Tayr*, 1487, painting, 7 3/4 × 5 3/4 (19.7 × 14.6 cm), The Metropolitan Museum of Art, New York, https://www.metmuseum.org/art/collection/search/451733.

The Library of Congress Cataloging-in-Publication Data is available online at https://catalog.loc.gov
LC record available at https://lccn.loc.gov/2025034310

Typeface for the Latin, Greek, and Cyrillic scripts: "Brill". See and download: brill.com/brill-typeface.

ISSN 2772-9834
ISBN 978-90-04-72748-9 (hardback)
ISBN 978-90-04-74848-4 (e-book)
DOI 10.1163/9789004748484

This book is printed on acid-free paper and produced in a sustainable manner.

Contents

PART 3

Governing the Soil: Taxonomy, Expertise, and the State

PART 4

Soil, Specialization, and Experimental Culture

CHAPTER 10

Three Seventeenth-Century Ottoman Books on Flowers (Şükūfe-nāme), Flower Breeding (*terbiye-i ezhār*), and the New Science of Soil in Istanbul

Aleksandar Shopov and Himmet Taşkömür

This chapter examines early modern Ottoman knowledge about soil as articulated in books on flowers called Şükūfe-nāme, which were written by flower breeders in mid-seventeenth-century Istanbul for the community of flower breeders in the city. During this period, Ottoman scholars, bureaucrats, and artisans were fashioning themselves as experts on flower breeding, an increasingly lucrative enterprise that resulted in the creation of many new, signature varieties of flowers such as tulips, narcissi, hyacinths, and roses. The Şükūfe-nāme books classify flower varieties according to color, size, form, and techniques of cultivation. Some of the extant manuscripts contain intricate watercolor illustrations of new varieties. Previous scholarship has considered the flower industry in Istanbul as part of discussions about new cultural and economic values attached to flowers, particularly tulips, in Ottoman society.[1] However, there has been little exploration of the relationship between the Şükūfe-nāme books and agricultural practices and knowledge.[2] These books attest to a living discourse of the period on the technologies and practices

1 See, e.g., Turhan Baytop, "The Tulip in Istanbul during the Ottoman Period," in *The Tulip: The Symbol of Two Nations*, ed. Michiel Roding and Hans Theunissen (Utrecht: Houstma Stichting, 1993), 5–56; Yıldız Demiriz, "Tulips in Ottoman Turkish Culture and Art," in Roding and Theunissen, *Tulip*, 57–75; Ariel Salzmann, "The Age of Tulips: Confluence and Conflict in Early Modern Consumer Culture (1550–1730)," in *Consumption Studies and the History of the Ottoman Empire (1550–1922)*, ed. Donald Quataert (Albany: State University of New York Press, 2000), 83–106.

2 An exception can be found in the early twentieth-century writings of Cevat Rüştü, the late Ottoman and early Republican agronomist. See Cevat Rüştü, *Türk çiçek ve ziraat kültürü üzerine: Cevat Rüştü'den bir güldeste*, ed. N. Hikmet Polat (Istanbul: Kitabevi, 2001). A large volume compiling illustrations and transcriptions from a number of Şükūfe-nāme works has recently been published: Seyit Ali Kahraman, *Şükûfenâme: Osmanlı Dönemi Çiçek Kitapları* (Istanbul: İstanbul Büyükşehir Belediyesi Kültür A.Ş., 2015). For a discussion of knowledge about seeds in Şükūfe-nāme literature, see Aleksandar Shopov, "Flower Breeding in Early Modern Istanbul: A Science of Seeds," *Isis* 113, no. 3 (2022): 588–596.

involved in flower breeding (*terbiye-i ezhār*), which, by the mid-seventeenth century, had been recognized as a science (*ʿilm*). Of particular significance are descriptions of techniques related to soil, which also became recognized as a distinct science in the same period. In addition to various writings on agriculture and archival documents, the following pages examine three texts, two of which are Şükūfe-nāme: one authored by ʿAbdullāh Çelebi (d. 1669), who hailed from a family of Ottoman bureaucrats; the other by ʿAli Çelebi (d. 1678), a lumber merchant (in this period, "Çelebi" was a title used for an urban gentleman and learned person). The third text is a biographical dictionary of Istanbul flower breeders by ʿUbeydī, a seventeenth-century preacher. Until now these authors have not been aknowledged as scholars because, as self described flower breeders, their writings are seen as falling outside what is perceived as established Ottoman scholarship. Nevertheless, these works attest to the advent of a community of practitioners who saw technical know-how as specific to the experimental practices and agricultural spaces of individuals. These works attest to the advent of a community of practitioners who saw technical know-how as specific to the experimental practices and agricultural spaces of individuals. Şükūfe-nāme literature was thus part of an emerging discourse that emphasized the know-how of practitioners as the founders of various schools of thought about soil and that elevated knowledge about soil into a science. Disregarding earlier Islamic agricultural authorities, Şükūfe-nāme books expound new ways of improving soil. We see these innovations as originating in the concrete spaces available to specific practitioners. The creative drive related to the improvement of soil for flower cultivation could be seen as a response both to the demand for desirable soil in Istanbul—where agriculture was nonetheless widely practiced—and to a burgeoning urban culture that placed value on novelty, sociability, visibility, and spectacle. It is within this context that an entirely new science of flower breeding developed.

Soil is given a very prominent place in texts on flower breeding. Indeed, as we will discuss in the case of the *Şükūfe-nāme* of ʿAbdullāh Çelebi, some of the seventeenth-century flower breeders in Istanbul and its surroundings are actually characterized as founders of schools on how to treat the soil in which flowers were to be planted. In 1641 (1051 AH), a letter of appointment (*berat*) was given to Sarı ʿAbdullāh Efendi, a well-known scholar and mystic, which refers to him as

> the indisputable authority in the asserting of and distinguishing among various classes of flowers [*tabakat-i ezhār*], one who is superior to his peers in solving matters pertaining to the science of flowers [*ʿilm-i ezhār'da fāik'ul-akrān*] … In the sciences of gardening, he is an arbiter, he

> is the leader par excellence, and appraiser among the artisans and flower breeders who are busy cultivating the gardens and flowers [*terbiye-i riyaz ve ezhār*] in the royal domains [of the Ottoman Empire].[3]

Sarı ʿAbdullāh Efendi is also described as someone with deep knowledge in the science of music who could solve difficult matters of music writing and was known as the Aristotle of his time for his ability to solve astrological puzzles. The letter of appointment clearly describes Sarı ʿAbdullāh Efendi as an authority in matters of flower breeding, and the wording recognizes flower cultivation as a science (*ʿilm-i ezhār*, a science of flowers). He is given a leadership role (*mümeyyiz ve başbuğ*) as the head of all of the flower breeders in the entire Ottoman domain. The letter of appointment further clarifies that Sarı ʿAbdullāh Efendi was to be the sole arbiter in matters related to flowers and trees and given the authority to identify (*teşhis*), to distinguish one from another (*temyiz*), and to examine their qualities and features (*tedkik*). This terminology indicates the existence of techniques for the observation and classification of plants. ʿUbeydī's *Netāyicü'l-Ezhār* (1698–1699) records the letter as a document which shows that, in 1641, flower breeders were recognized as a distinct guild (*taife*) whose appointed leader possessed scientific qualifications. The creation of this position in 1641 was preceded by the involvement of high-ranking Ottoman officials in matters related to flower breeding, and by the growing communities of flower breeders from different social classes. ʿAli Çelebi, in the introduction of his *Şükūfe-nāme*, writes that, during the term of the grand vizier Hadım Gürcü Mehmed Paşa (in office, 1622–1623), renowned and ordinary gardeners from the city were summoned by him twice a week to discuss flowers. During his term, he also organized banquets and distributed generous gifts to the flower breeders.[4]

Flower breeding is generally treated as evidence of changing cultural attitudes in the opening decades of the eighteenth century, a period the early twentieth-century Ottoman historian Ahmed Refik dubbed the Tulip Age (*Lale Devri*).[5] While he rightly highlighted the cultural value of tulips in this period, Ahmed Refik, and those who followed his conceptualization of this era as the beginning of Westernization/modernization, overlooked that the

3 Kahraman, *Şükûfenâme*, 88–89. This letter of appointment is included in the biographical entry on Sarı ʿAbdullāh Efendi in ʿUbeydī's *Netāyicü'l-Ezhār*, a biographical dictionary of Istanbul's flower breeders written in 1698–1699. Unless otherwise noted, all translations by the authors.

4 Kahraman, *Şükûfenâme*, 29. According to ʿAli Çelebi's treatise, even such a person as Sultan Ahmed I (r. 1603–1617) sowed seeds to grow flowers and cultivated them.

5 Ahmed Refik, *Lale Devri (1130–1143)* (Istanbul: Kitabhane-i Askeri, 1915), 43–46.

Şükūfe-nāme literature had appeared earlier in the seventeenth century, when flower breeding was already recognized as a separate science (*ʿilm*).[6] Another school of thought reevaluates flowers in terms of their economic significance as early modern commodities.[7] Both the cultural and economic approaches have largely overlooked the texts themselves and their construction of knowledge about flowers, including knowledge about soil and other material objects related to flower breeding. These omissions have contributed to the common assumption that the Ottoman study of plants and soil commenced in the nineteenth century with the establishment of the modern schools of agriculture following a Western European curriculum. However, our close comparison of two books on flower breeding demonstrates that methods of soil improvement were already being discussed and implemented in Istanbul and its surroundings in the seventeenth century. Groups of practitioners with a common interest in hands-on examining of soil began to share the results of their experiments and disseminated this knowledge within the city's growing flower-breeding community.

1 Classifying and Experimenting with Soil in ʿAbdullāh Çelebi's *Şükūfe-nāme*

An Ottoman treatise in verse on the art of tending fruit trees, vegetables, and flowers, dated 1638, dedicates its first chapter to the "technique of examining the soil" (*ṣanʿat-ı tecribe-i zemīn*). The author, whose name is given as Kemānī, described a method for evaluating the quality of soil: Dig up one *ẕirāʿ* of soil and mix it with rainwater. Then pass the mixture through a piece of delicate cloth into a bottle "until it becomes mud" (*balçık ola*) and leave outside "overnight in the frost and dew" (*bir gece ṭursun ayazda*) in order for the water to separate again from the soil. In the morning, examine the "sky-colored and clear" (*göm gök ola*) water for a foul odor, as this indicates that the fruit grown from it will be spoiled and lacking in taste.[8] Although this method can be

6 One of the first to point out the anachronistic characterization of this period as the Tulip Age was Cemal Kafadar, who noted that the image of the tulip was very common to the period before 1718. See Cemal Kafadar, "The Myth of the Golden Age: Ottoman Historical Consciousness in the Post-Süleymânic Era," in *Süleymân the Second and his Time*, ed. Halil Inalcik and Cemal Kafadar (Istanbul: Isis Press, 1993), 37–48, on 40.

7 Salzmann, 83–106.

8 Kemānī, *Ġars-nāme*, MS Hacı Mahmud Efendi no. 5612, fol. 2b, Süleymaniye Kütüphanesi, Istanbul. This source is discussed in Aleksandar Shopov, "Between the Pen and the Fields: Books on Farming, Changing Land Regimes, and Urban Agriculture in the Ottoman Eastern Mediterranean ca. 1500–1700" (PhD diss., Harvard University, 2016), 388–400.

found in earlier agronomic treatises in Arabic and Ottoman Turkish, in these it is described as a *ka'ide*—"rule" or "custom." Kemānī's chapter title, in contrast, emphasizes "technique" (*ṣan'at*). While the word *tecribe* in the title could have various meanings, including "experience," the detailed description given for this technique for testing soil suggests that it meant something like "testing" or "examining." This further distinguishes the text from an earlier sixteenth-century Ottoman Turkish agricultural text in which the section on soil is simply titled "chapters on soil."[9]

Nothing concrete is known about Kemānī, whose name means "master archer" and who does not feature in the historiography of Ottoman science.[10] Nevertheless, the Kemānī case exemplifies a notable trend in seventeenth-century Ottoman society in which certain members of a new group of urbanites who had not pursued scholarly careers gained recognition as learned individuals who cultivated expertise and technical knowledge. The seventeenth-century Ottoman bureaucrat and traveler Evliyā Çelebi (d. c. 1682) documented two such figures, Hazarfen Hüseyin (d. 1691) and Lāgarī Hasan Çelebi, Istanbulites who conducted public demonstrations in which they attempted to fly over the Bosporus or launch themselves into the air with a rocket.[11] Practical know-how also began to appear in the written discourse that was intended to be shared with a broader, urban audience.

Kemānī's decision to write in verse renders the text accessible to a broader audience through the mediums of recitation and memorization. His treatise also breaks from tradition by not citing any older agronomic authorities, focusing instead on the author's own practical knowledge.[12] As early as the sixteenth century, the dissemination of vernacular know-how outside of institutions of higher learning emerged in certain spaces in Ottoman cities, especially in Istanbul's coffee houses, taverns, promenades, and public places. Istanbul's large produce garden complexes, or *bostāns*, were prime examples of such spaces.[13]

---

9 Zafer Önler, ed., *Revnak-ı Bustan* (Ankara: Turk Dil Kurumu, 2000).

10 For a brief entry on the available manuscript copies of this work, see Ekmeleddin Ihsanoğlu, ed., *Osmanlı Tabii ve Tatbiki Bilimler Literatürü Tarihi* (Istanbul: IRCICA, 2006), 1:83.

11 Evliyā Çelebi, *Evliya Çelebi Seyahatnâmesi: Topkapı Sarayı Bağdat 304 Yazmasının Transkripsiyonu-Dizini*, ed. R. Dankoff, S. A. Kahraman, and Y. Dağlı (Istanbul: Yapı Kredi Yayınları, 2006), 1:353–354.

12 See Shopov, "Between the Pen and the Fields," 388.

13 Aleksandar Shopov, "When Istanbul Was a City of *Bostāns*: Urban Agriculture and Agriculturists," in *A Companion to Early Modern Istanbul*, ed. Shirine Hamadeh and Çiğdem Kafescioğlu (Leiden: Brill, 2021), 279–307; Aleksandar Shopov, "Grafting in Sixteenth-Century Mamluk and Ottoman Agriculture and Literature," in *Living with Nature and*

Who were Kemānī's readers? Who among his contemporaries might have found his verses on the "technique of examining the soil" important and relevant? One of the surviving copies of Kemānī's treatise, held today in Istanbul in the library of the renowned nineteenth-century scholar Bağdatlı Hacı Mahmud Efendi, is bound together with a copy of a treatise on flower breeding authored by the Ottoman polymath Hacı Ahmed Çelebi.[14] The binding together of these works makes sense, as a significant portion of Kemānī's treatise is devoted to the cultivation of flowers. During Kemānī's lifetime, Istanbul and its neighboring towns witnessed the appearance of the first treatises on flower breeding, which served as precursors to a distinct genre. The earliest dated work in the eponymous genre is the 1667 *Şükūfe-nāme* by ʿAli Çelebi. Another was authored in the same period by ʿAbdullāh Çelebi, a contemporary of ʿAli Çelebi who is mentioned in the latter's work as the creator of a new variety of narcissus.[15] It is in ʿAbdullāh Çelebi's *Şükūfe-nāme* that we find a reflection on the science of soil. Let us look at how ʿAbdullāh Çelebi conceptualized the knowledge of breeding flowers. In his introduction, he establishes his authority on flowers by emphasizing his "long-term" (*müddet-i medide*) involvement in flower breeding (*terbiye-i ezhār*) and designing flower gardens (*tarh-i lale-zar*). He quotes Qur'anic verse and notes that God taught Adam the names of all things. This he considers as giving rise to known sciences (*ulum-u zevahir*), but he also explains that there are sciences yet to be established (*ulum-u bevatin*). Here, *bevatin* does not refer to mystical knowledge; it is rather a reference to "innate" or *potential* knowledge waiting to be uncovered.[16] To justify the novel undertaking of writing a treatise on flowers, the introduction also tells the story of a narcissus whose seeds were brought from Algiers by a person named Ahmed Çelebi (who must have lived at the beginning of the seventeenth century) and planted in Üskudar, a town located across the Bosporus from Istanbul.[17] ʿAbdullāh Çelebi cites this moment as marking the inception of flower breeding in Istanbul. He claims that the Istanbul Sufi master Hüdai (d. 1628) had instructed Ahmed Çelebi to save the seeds of this flower, which nobody in Istanbul had previously known could produce its own seeds.[18] Variations of this story appear in other treatises, including the 1667 *Şükūfe-nāme* by ʿAli

Things: Contributions to a New Social History of the Middle Islamic Periods, ed. Bethany J. Walker and Abdelkader Al Ghouz (Bonn: University of Bonn Press, 2020), 381–406.

14 Hacı Ahmed Çelebi, *Filahatname Şukufe-i Beçli Hacı der tertibi zerrin-kase*, MS Hacı Mahmud Efendi 5612, fols. 12b–17b, Süleymaniye Kütüphanesi, Istanbul.

15 Shopov, "Flower Breeding," 593.

16 Kahraman, *Şükûfenâme*, 117.

17 Kahraman, 121.

18 Kahraman, 117.

Çelebi.[19] The story associates the beginning of flower breeding in Istanbul with a Halveti Sufi network.[20] It also characterizes Istanbul as a place where plants from other regions and climes arrive, become objects of study, are propagated, and defy older Avicennian ideas that plants change their qualities when moved from one region or clime to another.[21] Following his introduction, ʿAbdullāh Çelebi offers chapters devoted to various aspects of breeding flowers: how to preserve, transport, and store seeds and bulbs; methods of irrigation; and the twenty-three characteristics a flower should have in order to be valuable and marketable.

The first chapter, however, is a chapter on soil. This opens as follows:

> There is no limit to the types of soil, but yellow fleshy [soft] soil, black fleshy [soft] soil, yellow compact soil, and clay soil are good. Among these, yellow compact soil is very good for yellow flowers, but it should not be taken from places not suitable for cultivation and left fallow. This is everyone's opinion.[22]

In emphasizing the limitlessness of soil types, ʿAbdullāh Çelebi departs from the most authoritative Ottoman Turkish work on farming, the sixteenth-century *Revnaḳ-ı Būstān* (Splendor of the garden), which had identified only two types of soil with their subtypes, one pure and the other mixed with sand.[23] He also uses the phrase *cümlenin kavli* (everyone's opinion), which is a concept belonging to Islamic legal theory that means an indisputable position reached through deliberation and consensus.[24] One example of how such consensus was achieved among seventeenth-century Istanbul flower breeders is illustrated by a story told in this same chapter. ʿAbdullāh Çelebi writes that he was summoned by an unnamed friend who had a garden (*bağçe*) in Yenibağçe, a

19 Kahraman, 29. See Shopov, "Flower Breeding," 593.

20 Shopov, "Flower Breeding," 594.

21 Aleksandar Shopov, "In the Balsam Orchard with Ṣāliḥ Çelebi Celālzāde (d. 1565): First-Person Narrative and Knowledge in Ottoman Egypt," in *Crafting History: Essays on the Ottoman World and Beyond in Honor of Cemal Kafadar*, ed. Ilham Khuri-Makdisi, Rachel Goshgarian, and Ali Yaycıoğlu (Boston: Academic Studies Press, 2023), 255–276.

22 "Hākın envāına had yoktur, lakin sarı et toprak ve sarı kesme toprak ve kıl toprak ve rakik kum toprak iyidir. Bunlardan sarı kesme toprak sarı çiçek içün gayet ile iyidir, amma pek kıraç yerden olmaya. Cümlenin kavli bunun üzerinedir." Kahraman, *Şükûfenâme*, 120.

23 On the sixteenth-century agricultural and economic concerns of Ottoman society as reflected in the *Revnaḳ-ı Būstān*, see Aleksandar Shopov, "The Vernacularization of Sixteenth-Century Ottoman Agricultural Science in its Economic Context," in Walker and Al Ghouz, *Living with Nature and Things*, 639–681.

24 Kahraman, *Şükûfenâme*, 29.

district in the walled city of Istanbul located along the Bayram Paşa stream and famous for its *bostāns* since the early sixteenth century.[25] This person had a specific issue in his garden: he was unable to grow yellow flowers. ʿAbdullāh Çelebi "examined" (*nazar eyledim*) the soil and concluded that the soil in his friend's garden was a flour-like "refined sandy soil," which caused each bulb to crack into pieces. He gave his opinion that "yellow-cut firm soil" was the most suitable for his friend's garden, and in this way was able to share his expertise. For ʿAbdullāh Çelebi, knowledge about soil was a prerequisite for cultivating flowers.

ʿAbdullāh Çelebi gives several examples of how mid-seventeenth-century Istanbul flower breeders constituted a community of practitioners. They operated within a frame of principles and methods that had to be validated through experimentation. Soil was one of their primary concerns. Mola Çelebizade, a gentleman scholar from Istanbul's suburban area of Fındıklı who bred the peach-yellow (*şeftalu sarı*) and golden-yellow narcissus flower varieties,[26] improved the soil by mixing it with grape pulp (*cibre*): "He takes a bucket of grape pulp and puts it in a place and pours four buckets of soil and makes a heap [*tepe*], and then after two years he plants flowers and rotates the soil between the planting row."[27] Another technique is attributed to the flower breeder Ulvanzade, who, depending on the size of the planting row, mixes three or four buckets of aged manure, which he had already used in the planting beds and which has been sifted, with garden soil, plants the bulb, and covers it with old soil taken from a flower planting row.[28] Another example is Hasan Kapudanzade, son of a ship captain, who turns out to be ʿAbdullāh Çelebi's father-in-law. He also used a grape pulp fertilizer, but black snails the size of olive stones appeared and ate the flowers. They also ate the leaves. This experiment, according to ʿAbdullāh Çelebi, was clearly a failure.[29]

A more successful experiment in soil improvement mentioned by ʿAbdullāh Çelebi was one conducted by Cüce Çelebi (d. 1651), who is recorded as being the commander of a fortress overlooking the harbor of Istanbul and who bred a variety called Cüce's plum-shaped tulip (*Cüce ablağı*), a depiction of which can be found in ʿAli Çelebi's *Şükūfe-nāme* (Figure 10.1).[30]

25 On the Yenibağçe produce garden complex in Istanbul, see Shopov, "When Istanbul Was a City," 283–284.

26 Kahraman, *Şükûfenâme*, 38, 42.

27 Kahraman, 120.

28 Kahraman, 120.

29 Kahraman, 120.

30 Kahraman, 46, 48.

FIGURE 10.1 *Cüce ablağı* variety of tulip in ʻAli Çelebi's *Şükūfe-nāme*
SOURCE: NURUOSMANIYE KÜTÜPHANESI, ISTANBUL, MS 4077, FOL. 27B–28A

Cüce Çelebi's technique is to dig a hole two to three yards deep in a spot in his garden. He takes the fresh soil from this hole and plants the flowers in it. The soil that is already in the flower bed after being used is mixed with manure (*gübre*) at a ratio of four to one. He fills the same pit with this mixture, and after three years he repeats the cycle.[31]

ʻAbdullāh Çelebi specifies the ratio of manure to soil for those who wish to repeat the experiment. At the end of the chapter on soil, he further specifies the location of Cüce Çelebi's soil improvement—an enclosed room in the garden—where this experiment took place, and where the author was invited personally to observe the four wells dug on each side of the room for this purpose.

31 Kahraman, 121.

Methods for improving soils and manure had been incorporated in earlier Arabic and Persian writings on agriculture.[32] The novelty of ʿAbdullāh Çelebi positioning himself as a follower of the soil-improvement methods of Cüce Çelebi is his association of soil-improving techniques with contemporary individuals. This practice is not evident among earlier agricultural writings in Arabic, Persian, or Turkish. ʿAbdullāh Çelebi employs the term *mezheb*, which can be translated to "school of thought" but is also an Islamic legal term used for the Islamic schools of law, which have distinctive methods of legal reasoning and substantive law established by medieval eponyms.[33] Each school is identified with a founder scholar who laid out the methodology and principles in interpreting legal matters and coming up with legal solutions to new cases by deliberating on sources of Islamic law. ʿAbdullāh Çelebi's analogy of the methods for improving soil with *mezheb* and the science of jurisprudence elevated the study of soil to an independent discipline of study or *ʿilm* with distinct founders and practitioners who were his contemporaries. In the sixteenth- and seventeenth-century Ottoman genre of science classification, including the foundational works of Aḥmed ibn Muṣṭafa Taşköprülüzāde (d.1561) and Kātib Çelebi (d. 1657), the study of soil did not constitute an *ʿilm*.[34]

This new epistemology of soil was related to new ways of evaluating the qualities of manure. In earlier works on farming, manure's quality is defined according to the animal from which it comes. For example, the author of the aforementioned sixteenth-century Ottoman agricultural treatise *Revnaḳ-ı Būstān* had claimed that the best manure came from sheep and goats, followed by the manure produced by horses, cows, donkeys, and mules.[35] In contrast, according to ʿAbdullāh Çelebi, the best manure for the purpose of flower breeding is cow dung, as he considered sheep manure to be of lesser quality due to the presence of saltpeter. For ʿAbdullāh Çelebi, the chemical composition of the manure is as important as the source. In this sense, the author may have been relying on practical know-how about saltpeter production, which was widespread in the Ottoman Empire due to its use in the making of gunpowder.

32 For an overview on the methods of improving soils with manure in agronomic writings in Arabic between the ninth and seventeenth centuries, see Daniel Varisco, "Zibl and Zirāʾa: Coming to Terms with Manure in Arab Agriculture," in *Manure Matters: Historical, Archaeological and Ethnographical Perspectives*, ed. Richard Jones (London: Routledge, 2012), 129–143.

33 Kahraman, *Şükûfenâme*, 120: "Bu hakir Çelebi Cüce mezhebindeyim."

34 Aḥmad ibn Muṣṭafā Ṭāshkubrīʾzādah, *Al-Shaqāʾiq al-Nuʿmānīyah fī ʿUlamāʾ al-Dawlat al-ʿUthmānīya* (Istanbul: Jāmiʿat Istānbūl, Kulliyat al-Ādāb, Markaz al-Dirāsāt al-Sharqiyah, 1985).

35 Önler, *Revnak-ı Bustan*, 25.

Furthermore, ʿAbdullāh Çelebi makes a distinction between the quality of cow dung from the city and from the countryside, stating that the dung of cows fed with bran and millet is of lower quality than that of grass-fed cows that grazed in the countryside; this latter type, he adds, is difficult to obtain and is not harmful to flowers.

Interest in the relationship between flowers and soil quality can be discerned among Ottoman scholars at the end of the sixteenth century. The Ottoman scholar Nevʿī Efendi (d. 1599), in his highly influential work on sciences, *Netāyicü'l fünūn*, gives three cases that illustrate this. In the first, on the quality of soil, he states:

> One sign of [good soil] is if the flowers are red and grasses numerous. Another sign is that the flowers are red and there are no varieties of grass. And [as for] useless soil, its sign is that the flowers are white and the land is salty and the grasses are weak and short.[36]

This method of determining the productivity of soil according to wild flower growth is not found in the earliest work on farming written in Ottoman Turkish, the *Revnaḳ-ı Būstān*, in which the color of soil rather than color of plants is an indicator of fertility. Between the *Revnaḳ-ı Būstān* written in the mid-sixteenth century, and the first of the Şükūfe-nāme writings, flowers began to be used as a metric of good or bad soil. Was Nevʿī Efendi aware of this use of flowers in the rich literature of earlier Arabic and Persian agricultural manuals? No such reference exists in the Ottoman Turkish translation made in 1590 of the influential twelfth-century Andalusian scholar Ibn al-ʿAwwām's work on farming, *Kitāb al-filāḥa*.[37] Ibn al-ʿAwwām extensively discusses matters of soil in his work by summarizing earlier literature, which makes its way into the Ottoman Turkish translation. In fact, the classification of soils was of utmost importance to the functioning of the expanding Ottoman state bureaucracy in the mid-sixteenth century.[38]

---

36 "Bir alameti oldur ki şükūfesi surḫ olur ve giyahi muhtelif olunur. Bir alameti oldur ki şükūfesi sefid olur ve şure olur ve giyahi zaif ve hurde olur ve muhtelif olur. Bu makule zemine hayr olmaz." Nevʿī Efendi, *Netāyicü'l fünūn*, MS Turk 50, fol. 91a, Harvard University, Houghton Library, online collection, accessed June 4, 2023, https://iiif.lib.harvard.edu/manifests/view/drs:10697031$1i/.

37 İbn Avvâm, *Terceme-i Kitâbü'l-Filâha* (*Ziraat kısmı*), trans. Muhammed b. Mustafa b. Lutfullah, ed. Mükerrem Bedizel Zülfikar-Aydın (Istanbul: Kitabevi, 2011), 112–139.

38 Ebu's-suʿud Efendi (d. 1574), the highest-ranking Ottoman jurisconsult (*şeyhülislām*), discussed the quality of soil as a marker for the amount of tithe paid by the farmers. See

During this period, a growing number of Istanbulites became directly involved in agricultural production by taking over land belonging to the customary land holders.[39] Halil İnalcık has pointed out that government circles at that time were alerted to an increase in the number of cases involving the illegal sale of state land.[40] The use of flowers to gauge the quality of soil in Nev'ī Efendi's writings also needs to be seen in the context of the profuse planting of flowers in Istanbul and its environs in the sixteenth century. Numerous shipments of flowers and their bulbs from Edirne and northern Syria were sent to Istanbul during this period as part of operations financed by the Imperial Council and provincial treasuries.[41] Their planting in the numerous newly established royal gardens required renewed consideration of materials (soil, water, seeds) as well as climatic conditions.[42] According to 'Ubeydī's *Netāyicü'l-Ezhār* (Biographical dictionary of flower breeders; written in 1698–1699), prominent scholars from this period, such as the Şeyhülislām Ebu's-su'ud Efendi, were personally involved in flower breeding.[43] Ebu's-su'ud Efendi is listed as one of the earliest flower breeders.[44] He created three varieties of narcissus flowers that he named after himself.

'Abdullāh Çelebi's writings highlight examples of trials and experiments with soil and ascribe these techniques to contemporary individuals. What motivated 'Abdullāh Çelebi to put practical knowledge about soil, and methods

---

Millî Tetebbular Mecmuası, vol. 1.1 (Istanbul: Âsâr-i İslâmiye ve Milliye Tedkik Encümeni, 1331 AH/1915), 51.

39 Shopov, "When Istanbul Was a City." A similar development is noted for Ottoman Egypt, where, in 1552, the jurist Ibn Nujaym completed a treatise defending the rights of the rentier and landowning class, arguing for their tax exemption. See Baber Johansen, *The Islamic Law on Land Tax and Rent: The Peasants' Loss of Property Rights as Interpreted in the Hanafite Legal Literature of the Mamluk and Ottoman Periods* (London: Croom Helm, 1988).

40 Halil Inalcik, "The Ottoman State and Society: Economy and Society, 1300–1600," in *An Economic and Social History of the Ottoman Empire, 1300–1914*, ed. Halil Inalcik and Donald Quataert (Cambridge: Cambridge University Press, 1994), 11–411, on 113. The sale of land in the seventeenth century was frequently disguised as a sale of vineyards and gardens *on* the land. See Ömer Lütfi Barkan, "Edirne Askerî Kassam'ına Âit Tereke Defterleri (1545–1659)," *Belgeler* 3, nos. 5–6 (1966): 1–479, on 55; Shopov, "Balsam Orchard," 273–275.

41 Shopov, 274–275.

42 For example, pomegranate trees brought to Istanbul from Aleppo and Diyarbekir following the conquest of Iraq in the 1530s were planted on the lower slopes of the royal garden of Topkapi Palace. See Shopov, "Balsam Orchard," 273–275.

43 Kahraman, *Şükûfenâme*, 66.

44 MS Nuruosmaniye no. 3704, fol. 8b, Süleymaniye Kütüphanesi, Istanbul; Kahraman, *Şükûfenâme*, 66.

of improving it, into writing? In the following section, we demonstrate how the new expertise and authority on matters related to soil and flower breeding was predicated on earlier intervention by the Ottoman state and contemporary debates in matters related to flower breeding.

2 Establishing Authority among Communities of Experts

Establishing his credentials, ʿAbdullāh Çelebi describes himself as the nephew of an Ottoman bureaucrat and as a well-known flower breeder. He also lists several other flower breeders, most of them scholars and learned bureaucrats, all of whom, he states, "have the capacity to reject and accept expert opinions [on matters related to flowers]" (*redd ve kabul sahibleri*). He says that he had the desire to collect "all the pearl-like precious opinions" of these people as well as the useful knowledge that he himself had obtained through experience (*tecrübe*). These "opinions," he emphasizes, were circulated and "exchanged" (*mutedavil*) among these flower breeders. Furthermore, ʿAbdullāh Çelebi's writing was strongly supported by the grand vizier Mustafa Paşa, to whom his treatise was dedicated. According to an inventory of the grand vizier's private possessions, drafted following his execution, he owned agriculturally productive properties, including a farm estate near Edirne and several gardens with pavilions around Istanbul.[45] The involvement of this type of patron, a landowner interested in agricultural techniques, was related to Ottoman thought on statecraft during this period, which considered agriculture one of the major means for high-ranking Ottoman officials to gain wealth.[46] This practice of patronage offered by such government officials to the producers of works on flowers continued until the early eighteenth century. One late example is a treatise on tulips dedicated to the grand vizier Ibrahim Paşa (1666–1730).[47]

45 Here, ʿAbdullāh Çelebi is most likely referring to Merzifonlu Kara Mustafa Paşa, who led the unsuccessful second siege of Vienna in 1683. On Merzifonlu Kara Mustafa Paşa's agricultural properties, see Hedda Reindl-Kiel's article, "The Must-Haves of a Grand Vizier: Merzifonlu Kara Mustafa Pasha's Luxury Assets," *Wiener Zeitschrift für die Kunde des Morgenlandes* 106 (2016): 179–221.

46 The grand vizier Derviş Mehmed Paşa (in office, 1653–1654), made agricultural investments and profits in Iraq while serving as governor, a fact which was noted and commented on by Mustafa Naima, an Ottoman bureaucrat and historian (1655–1716). See İbrahim Metin Kunt, "Derviş Mehmed Paşa, *Vezir* and Entrepreneur: A Study in Ottoman Political-Economic Theory and Practice," *Turcica* 9 (1977): 197–214, on 203–207.

47 Lalezari Mehmed, *Lale Risalesi*, MS Pertsch Türkisch 292, fols. 3a–4a, Staatsbibliothek zu Berlin.

The introduction of new leasing practices for waqf (endowed) land in the seventeenth century had allowed Istanbulites like ʿAbdullāh Çelebi to appropriate agricultural land in and around the city.[48] Such urbanites included a number of women who, according to rules governing the lease contracts known as *icareteyn* (double lease), were allowed to inherit such leases.[49] This also explains the presence of women among the lists of flower breeders in this period. ʿAbdullāh Çelebi's reporting of his father-in-law Hasan Kapudanzade's techniques of soil fertilizing indicates that marriage may have played an important role in the transmission of flower breeding techniques between different households.[50]

ʿAbdullāh Çelebi's text shows an awareness of being part of the newly emerging science of flower breeding, which would continue to engage Ottoman scholars until the nineteenth century. Noting that no one person is capable of knowing everything, his conclusion recommends reading his treatise critically, encouraging readers to correct any mistakes he might have made, and even to insert their knowledge on the matter into the margins of the page.[51] The treatise is presented as an open text to be altered, amended, and corrected, as a space for debate and the exchange of ideas, an invitation that is not to be found in earlier Islamic agronomic literature.

Despite his generous invitation to readers to comment on and correct their copy of the manuscript, ʿAbdullāh Çelebi was not indifferent to the disagreements and debate that arose in the seventeenth century between different groups of flower breeders in Istanbul. In the conclusion, he states: "If some people attack my writings and argue that they have created desirable flowers without following these proper methods, this should not be taken seriously or listened to."[52] He then discusses examples of how certain varieties of flowers and their seeds had been created by his contemporaries, criticizing those who had misattributed these flowers to other individuals. For example, he describes a dispute over the identity of the creator of the seeds of a narcissus variety called "world adorning" (*ʿālem-ārā*): some attribute the creation of these seeds to the calligrapher Mahmud Çelebi, while others believe that Mahmud Çelebi obtained the seeds from the chief physician upon his death.[53] Another example is the *süleymani* variety of narcissus that, according to ʿAbdullāh Çelebi, was

48 Shopov, "When Istanbul Was a City," 287–292.
49 Shopov, 288–289.
50 Shopov, "Flower Breeding," 591; Kahraman, *Şükûfenâme*, 120.
51 Kahraman, *Şükûfenâme*, 129.
52 Kahraman, 129.
53 Kahraman, 129.

created by Ahmed Dede—whom the text identifies elsewhere as the initiator of the science of flower breeding—but which had been wrongly attributed to Salih Efendi. According to ʿAbdullāh Çelebi, Salih Efendi had purchased the seeds for the price of just enough woolen cloth to clothe one single person.

Alternative attributions for the *alem-ara* and *süleymani* varieties of narcissus to which ʿAbdullāh Çelebi alludes are found in the 1667 *Şükūfe-nāme* by ʿAli Çelebi, who attributes *ʿālem-ārā* to the calligrapher Mahmud Çelebi and the *süleymani* variety to Salih Çelebi.[54] The texts of ʿAbdullāh Çelebi and ʿAli Çelebi differ not only in terms of their attributions of varieties to different breeders but also in terms of their content. ʿAli Çelebi's *Şükūfe-nāme* treatise contains four chapters, each devoted to a particular kind of flower—narcissus, tulip, hyacinth, rose—and provides information about the color, form, and name of the newly bred varieties. He also lists both male and female Ottoman flower breeders, many of them artisans living in or near Istanbul. ʿAbdullāh Çelebi, in contrast, divides the chapters according to various methods and techniques for creating these breeds, including the treatment and improvement of soil. The Şükūfe-nāme of ʿAli Çelebi and ʿAbdullāh Çelebi provide insights into debates about the question of manure and soil among the Istanbul flower breeding community. One instance is found in ʿAli Çelebi's introduction, where he interprets the ability of some gardeners to develop new varieties within a span of five to ten years as a sign of technical expertise. However, ʿAbdullāh Çelebi objects to this view in his treatise on the techniques used to create such varieties.[55] In the chapter on soil, he writes that some flower breeders grew flowers from seeds by applying manure to the soil in which the flower seeds were sown. This accelerating method, he noted, produced bulbs in a time period as brief as five years, albeit with a reduction in the quality of the bulbs.[56] In essence, ʿAbdullāh Çelebi's chapter on soil is a description of alternative soil treatment methods aimed at cultivating superb flowers over a longer period of time, in some cases up to seventeen years. As we saw earlier, he peppers the chapter with information on individual flower breeders and places where these techniques were invented. One of ʿAbdullāh Çelebi's final chapters comprises a list of the twenty-three traits that he claimed made a "distinct and indisputable flower" which, when achieved, could increase the price of the bulb, in his words, to a large sum (seventy-five ġurūş).

While ʿAbdullāh Çelebi criticizes many of the attributions found in ʿAli Çelebi's work, ʿAli Çelebi's treatise praises ʿAbdullāh Çelebi for the creation of

54 Kahraman, 34.
55 Kahraman, 30.
56 Kahraman, 119.

the *nevrūziyye* variety of narcissus. He also notes that ʿAbdullāh Çelebi is still among the living and that he lives in Galata, just across the bay known as the Haliç (Golden Horn) overlooking Istanbul. He describes the new variety created by ʿAbdullāh Çelebi as a narcissus with "almond-like petals and some of them truncated in places toward the edges … and the seed houses are short and thick and a perfect yellow." He also details its growth and development from bulb to flower.[57] And illustration of this variety is found in ʿAli Çelebi's manuscripts. Painted in full color, the image fills an entire page, illustrating his description of the flower's development, showing multiple stages simultaneously as if to simulate the flower's life cycle as an animation.[58] According to ʿAli Çelebi, ʿAbdullāh Çelebi "discovered" (*bulunmuş*) this flower, growing it new from seed on Nevruz (the first day of spring), hence its name, *nevrūziyye*.[59]

Almost a century after the recognition of flower breeding as both a science and a guild by the Ottoman government, biweekly learned gatherings in grand vizierial households were still a common occurrence.[60] Flower breeders also met regularly in dervish lodges as well as in private households and gardens.[61] An Imperial edict from 1725 begins by highlighting that, for a long time, the residents of Istanbul had a deep inclination toward flower cultivation (*şükūfe perverliğe meyl u rağbet ediyorlar*). It also notes the existing flower market in the city, underscoring a notable surge in flower prices attributed to heightened demand and speculation.[62] In an attempt to regulate the issue of flower breeders and pricing, an Imperial decree established directives for pricing and mandated the presence of guild members, alongside the head of the flower breeders' guild, who were expected to create a list of flowers and their prices.

The same Istanbul court recorded an entry on December 23, 1725, with the prices of 224 varieties of *rumi* tulip.[63] This list shows the sheer amount of new

57 Kahraman, 38–39.

58 Kahraman, 38.

59 Shopov, "Flower Breeding," 593.

60 Halil Inalcik, *Şair ve Patron: Patrimonyal Devlet ve Sanat Üzerine Sosyolojik Bir Inceleme* (Ankara: Doğü Batı Yaınları, 2003), 73, quoted in M. Fatih Çalışır, "Vişnezâde İzzetî Mehmed Efendi (ö. 1092/1681): Kazasker, Şâir ve Hâmî," *Hikmet: Akademik Edebiyat Dergisi* (2021): 179–192, on 184–185.

61 ʿAli Çelebi writes that the Sufi Şeyh Ḥāsan Efendi organized learned gatherings every Friday in the dervish lodge of Koca Mustafa Paşa. See Kahraman, *Şükûfenâme*, 29; Shopov, "Flower Breeding," 593.

62 Fuat Recep, Mehmed Akan, and Fikret Sarıcaoğlu, *İstanbul Kadı Sicilleri Istanbul Mahkemesi 24 Numaralı Sicil* (*H. 1138–1151 / M. 1726–1738*) (Istanbul: İSAM, 2011), 120.

63 Fuat Recep, Mehmed Akan, and Fikret Sarıcaoğlu, *İstanbul Kadı Sicilleri Istanbul Mahkemesi 24 Numaralı Sicil* (*H. 1138–1151 / M. 1726–1738*) (Istanbul: İSAM, 2011), 165.

varieties that had been created throughout the seventeenth and early eighteenth centuries, many of them of high value.[64] Two years later, the prices of some of the flower varieties increased, which could be an indication that the Imperial Council was not able to control the high demand and speculation on Istanbul's flower market.[65] Soil, too, became an object of trade, as it was transported and sold to people constructing gardens within and around Istanbul. For example, the steward (*kethüda*) of the grand vizier Ibrahim Paşa purchased soil and pebbles for the price of 134 ġurūş, including transportation.[66]

3 Conclusion

This chapter has tried to show how and why practices surrounding flower breeding, particularly the improvement of soil, moved into the realm of textual production in mid-seventeenth-century Ottoman Istanbul. In ʿAli Çelebi's work, flower varieties are attributed to specific breeders. ʿAbdullāh Çelebi's work focuses on techniques for cultivating flowers, including improving the soil. It also identifies techniques with contemporary individuals who practiced and advocated for them, even elevating practitioners to the level of founders of "schools" in matters related to soil—a departure from earlier agricultural writings. The texts reflect an experimental culture in which flower breeding techniques, and flower genealogies, were debated within a community of practitioners. The two works were in conversation with each other. While ʿAli Çelebi praises the speed with which new varieties were being created, ʿAbdullāh Çelebi criticizes techniques for treating the soil that shortened the time period between the planting of the seed and the development of bulbs and flowers. These early examples of Şükūfe-nāme writings followed the recognition of flower breeding as a distinct science by the Ottoman government and the establishment of a flower guild with an appointed leader, a development with no precedent in either Ottoman or Islamic history.

While Ottoman flower breeding may be considered one of many transcultural global exchanges in the early modern period, the discussions of soil in the

64 The breeding of tulips also found expression in Ottoman visual culture. See Demiriz, "Tulips."

65 Munir Aktepe, "Damat Ibrahim Paşa Devrinde Laleye Dair bi Vesika," *Turkiyat Mecmuası* 11 (1954): 117–130, on 117.

66 Abdullah Sivridağ and Ali Coşkun, *Istanbul Kadı Sicilleri 66: Bab Mahkemesi 151 Numaralı Sicil* (*H. 1143–1144 / M. 1731*) (Istanbul: Kültür AŞ, 2019), 204.

Şükūfe-nāme of ʿAbdullāh Çelebi reflect the birth of a community of practitioners who were putting their experimental and innovation-oriented culture into writing. Far from constraining technical developments, the establishment of a guild coincided with the production of texts in which the nitty-gritty technical aspects of flower breeding were hotly debated. ʿAbdullāh Çelebi constructed an authoritative language based on *experience* and *experimentation* by applying terminology borrowed from Islamic legal discourse and by invoking contemporary practitioners and their experiments in the treatment of soil. The case of flower breeding in seventeenth-century Istanbul together with the generation of textual knowledge and authority spurred on by this emerging science—in particular on the matter of soil improvement—exemplifies the transformation of soil into a new object of study within Ottoman learned discourse.