RESEARCH ARTICLE

The Dissemination of Modern Agricultural Knowledge in the Colonial Period: A Review of the Marathi Monthly *Shetki aani Shetkari*

Sandipan Baksi* and Tushar Kamble[†]

Abstract: In the early twentieth century, British colonial policy on agriculture began to focus on the dissemination of modern scientific knowledge and practices through extension services, including experimental farms and exhibitions. Colonial administrators soon realised that these alone were not sufficient to bring about agricultural improvement. The Government then strengthened another arm of agricultural extension, namely, science propagation through leaflets in English and local languages, bulletins, journals, and calendars published by the Department of Agriculture. Alongside, agricultural associations, linked directly or indirectly to provincial Agricultural Departments, were encouraged to undertake agricultural extension in some Provinces. The Deccan Agricultural Association in Bombay Presidency was one such forum, and it played an important role in propagating the idea of agricultural improvement and disseminating information about scientific agriculture. Shetki aani Shetkari, the Marathi periodical published by the Association, was its most consistent means of the propagation of scientific information. The journal disseminated knowledge on modern methods and techniques of agriculture, and articulated, over the forty-one years of its life, the meaning and scope of agricultural modernisation. It is this two-pronged approach, namely, dissemination through the written word, along with other methods of agricultural extension, that this paper explores. The periodical did not deal with agrarian relations and the need to change them in order to fulfil the goal of agricultural modernisation. Equally stark was the absence of any mention of the relationship between caste and agricultural production, particularly at a time when a strong social reform movement under Jyotirao Phule and other leaders of the Satyashodhak Samaj was under way. Shetki aani Shetkari provided a window to the official understanding of agricultural modernisation and reflected the efforts taken to propagate that understanding among the landowning classes.

^{*} Research Scholar, Tata Institute of Social Sciences, sandipanbaksi@gmail.com

[†] Former Research Associate, Tata Institute of Social Sciences.

Keywords: history of agriculture, history of science, vernacular periodicals, Marathi periodicals, science and colonialism, popularisation of science, Deccan Agricultural Association, scientific agriculture.

By the late nineteenth century, the policies of the British colonial administration in India had created widespread agrarian crisis, with large parts of the subcontinent experiencing recurring famine. Agriculture, which constituted the largest source of revenue for the Government, had been decimated by a rapacious taxation policy. Even the Famine Commissions were scathing in their criticism of the Government's role in creating and perpetuating recurring crises that led to great human misery and material loss.¹

A realisation in official circles that the old approach to agriculture and agricultural development had become unsustainable led to the emergence in the last few decades of the nineteenth century of a new strand of thinking about agricultural policy.² The colonial administration began actively to be involved in promoting agricultural production and productivity through the introduction of modern agricultural techniques and practices. As a result of these interventions, provincial Agricultural Departments were established in different regions of the country, agricultural schools and colleges were founded, experimental farms established, and efforts made to develop institutional research in agriculture.³ These efforts often also led to enlisting the cooperation of progressively inclined Indian landowners and agriculturists.

By the early twentieth century, colonial officials began systematically to disseminate new knowledge about agriculture among the local landed elite – landowners,

¹ Special mention must be made of the *Report on the Improvement of Indian Agriculture* by J. A. Voelcker (1893), which made a balanced assessment of the Government's efforts to improve Indian agricultural production. It criticised the Government for the "neglect of modern scientific approaches to agriculture, especially the contribution chemistry could make to improving Indian soils, manuring practices, and crop yields" (quoted in Arnold 2000, p. 151), while appreciating at the same time its efforts at developing irrigation. The need for a specialised Department of Agriculture, handled by experts, was emphasised in the *Report*. The neglect of agricultural science education was also criticised.

² The few efforts undertaken to modernise agriculture in the first half of the nineteenth century were limited to select cash crops, such as indigo, jute, and hemp. Deepak Kumar (1997, p. 125) notes that "the British Government in India was perhaps the largest estate holder in the world and also its sole beneficiary. Even so, it ignored any scientific instruction in agriculture for a very long time." It is important to note that the serious shortcomings in the field of agricultural science were well known in Government. In 1870, Lord Mayo argued that the primitive conditions of Indian agriculture could be improved greatly through the application of science, and concluded that this responsibility largely fell on the State (see Ludden 1994, p. 6). See also Eugene Schrottky (1876), for an early commentary on Indian agriculture, in which he encouraged the use of modern science for its improvement.

³ For a description of the progress of Indian agriculture since the beginning of the twentieth century, see Howard and Howard (1929), and Randhawa (1983). Baber (1996, pp. 213–6) supports the view that direct policy-level intervention by the Government was not visible till the recurring famines in the second half of the nineteenth century. Ludden says that "stimulated by riots and famines, which indicated deep distress in agrarian India, a flood of texts ensued on agricultural improvement" (Ludden 1994, p. 7). He mentions some significant publications, such as the *Agricultural Class Book*, published by the Madras Government in the 1880s; *Moral and Material Progress Report*, published in 1908; and the *Report of the Royal Commission on Indian Agriculture*, published in 1928.

zamindars, and cultivators. A book titled Agricultural Lessons, published in 1906 and written by J. B. Knight, Professor of Agriculture at the College of Science in Poona, illustrated the new effort by scientists and administrators to connect directly with cultivators.⁴ In the first lesson of Part II of the book, "Government Agriculture," Knight discussed the purpose of government agricultural farms. Their objective, he wrote, was to experiment with ways to improve agricultural operations, including irrigation, and to develop new methods that could prove beneficial to the cultivators. Such centres could also experiment in introducing non-native crops and fertilizers, while emulating good agricultural practices from other regions of the country. Knight emphasised the importance of disseminating the knowledge gained through experiments among the cultivators. Such dissemination, he wrote, could be through the distribution of handouts and leaflets, and by means of programmes for cultivators to visit experimental farms and be exposed to new and improved techniques. He even pressed for setting up mechanisms for farmers to send in soil samples to the Department of Agriculture, which could then advise farmers and supply them seeds and fertilizers free of cost. A similar system could also be set up for plant disease and pest control.⁵

By the early twentieth century, the idea gained ground that to be effective, demonstration through experimental farms and exhibitions must be accompanied by science propaganda.⁶ This resulted in the publication by the Department of Agriculture of leaflets, bulletins, journals, and calendars in English and, more significantly, in Marathi. Agricultural associations to lead agricultural extension work were formed in the Provinces. As "non-official bodies which play an increasing part in the agricultural extension work of provinces and States,"⁷ these associations, comprising mostly government officials and the rural elite, were directly or indirectly linked to the provincial Agricultural Departments.⁸

The Deccan Agricultural Association was one such association. It played a unique role in the region of Poona and its neighbourhood in propagating the merits of agricultural improvement as well as disseminating information and knowledge about scientific agriculture. *Shetki aani Shetkari* (Agriculture and Farmers), the Marathi periodical published by the Association from 1910 to 1951, was its most consistent instrument for the dissemination of agricultural knowledge and information on modern practices in agriculture within the policy framework set by the Government. This

⁸ See the section on agricultural associations (*ibid*.).

⁴ Agriculture was introduced as a subject in the College of Science, Poona (now Pune) before the establishment of the College of Agriculture in Poona.

⁵ Knight (1906).

⁶ The *Report of the Royal Commission on Indian Agriculture* of 1928 used the terms "demonstration" and "propaganda." Both, it was argued, were important for the purpose of dissemination of new agricultural knowledge.

⁷ See the *Report on Agricultural and Animal Husbandry in India* (1935–6), published by the Imperial Council of Agricultural Research. The *Report* mentions such associations in Madras, Bombay, Bengal, United Provinces, Punjab, Burma, Bihar and Orissa, Central Provinces, Assam, Hyderabad, and Mysore.

paper will explore in some detail the role played by *Shetki aani Shetkari* in agricultural modernisation and extension and allied areas.

The Deccan Agricultural Association and its Journal⁹

In the first decade of the twentieth century, G. F. Keating, Director of the Department of Agriculture, Bombay Presidency,¹⁰ with the help of Sir Muir Mackenzie, the acting Governor of the Presidency, took the initiative to assemble a gathering of sardars and *jagirdars* (feudal chiefs and landlords), rulers of Princely States, big landowners, and other select representatives of the rural elite to help the Government promote the use of modern methods and techniques in agriculture. A meeting for this purpose was held in 1908 in the city of Poona, where the idea of founding an association that could promote this vision was floated. The Deccan Agricultural Association was thus established at a meeting in September 1909 under the chairmanship of Mackenzie. At this initial stage the Association was constituted of 15 temporary members. Some of them, like Keating and Harold Mann, were officials of the provincial Government. To begin with, the Association's objectives were (a) to develop a scientific approach towards the improvement of agriculture in Maharashtra, (b) to try and persuade cultivators to adopt modern methods and practices, and (c) to establish a link between the Department of Agriculture and different sections of rural society.¹¹ As is clear from this, the dissemination of new knowledge was the central task of the Association and would continue to remain so for several decades.

The Association, therefore, was a forum that represented the common interests of the colonial State and forward-thinking sections of the Indian rural elite in respect of enhancing the productive potential of agriculture.¹² Shetki aani

⁹ This section is primarily based on information gathered from different issues of *Shetki aani Shetkari*, especially its first issue of June 1910, and the one dated September 1933 which gives a summary of the work of the Association under the title "*Deccan Agricultural Association Va Tichya Kamaa Sambandhi Saransh*" (Deccan Agricultural Association and a Summary of its Functioning). It also draws from the Gazetteers of Poona District, District series (revised edition of Volume XVII, Parts I, II, and III of the original Gazetteer of Bombay Presidency related to Poona).

¹⁰ Keating wrote two books on the situation in the countryside, especially agriculture in western India, viz: (1) *Rural Economy in the Bombay Deccan* (1912), and (2) *Agricultural Progress in Western India* (1921). The former is a factual account of the rural economy of Bombay Presidency, while the latter looks at the causes and obstacles to the development of agriculture, in which he also compares the Indian situation to that in other countries.

¹¹ Shetki aani Shetkari, September 1933.

¹² The Association had among its members, princes of various Indian States, *sardars* and *zamindars*, some highranking British officers, and others interested in agricultural development. See *Shetki aani Shetkari*, September 1933. The Association had three categories of membership: patrons, referred to as *asharayadaate*; life-time members, or *tahahyat sadasya*; and finally, ordinary members, known as the *sabhasad*. Together, they elected a management/executive committee. The work of the Association was divided among nine or ten committees. There was, for example, a propaganda (*prachar*) committee, a committee on animal husbandry (*pashusanvardhan*), another on secondary occupations (*duyyam-dhande*), a publication (*prakashan*) committee, and so on. See *Shetki aani Shetkari*, June 1910.

Shetkari, the mouthpiece of the Association, was born of the realisation that to meet this goal, the medium of communication had to be the vernacular. It thus became one of the early vernacular journals of science communication in Bombay Presidency.

From 1910 onwards, the Deccan Agricultural Association began its work in earnest. Initially it took up programmes for demonstrating improved methods of cultivation. These methods were often from among those tested and validated at the experimental farms in the Presidency. The demonstration activities were conducted in villages, especially at the time of annual religious festivals and fairs (*jatras*), and were obviously popular and well attended by farmers from different regions, as the reports in the journal attest to.¹³ Such demonstrations were also conducted on the landowners' farms. The staff of the Agricultural College in Poona often provided the personnel for these demonstrations.¹⁴ Information about modern iron ploughs and other improved implements, recent scientific techniques, and discussions on the potential for allied businesses were a part of the dissemination activities. The Association was used to spread information about the activities of the Department of Agriculture. It also conducted quarterly meetings where new knowledge on agriculture and related topics was discussed. Further, it facilitated frequent meetings of important landowners.

Within the first few years of its existence, the work of the Deccan Agricultural Association expanded alongside an increase in membership. It also set up a network of agricultural associations at the local level.¹⁵ It started a cooperative, albeit short-lived, for supplying fertilizer to sugarcane cultivators of the Mutha canal area and to regulate canal water supply. The Association also channelled the flow of information between the cultivators and the Department of Agriculture, keeping the latter informed about problems faced by the former.

Within the first ten years of its functioning, the Association saw several successes.¹⁶ Its permanent fund increased to Rs 10,000. Important colonial officials, like

¹³ See Shetki aani Shetkari, September 1933. The December 1921–January 1922 issue (pp. 137–8), in a section titled "Spoot" (Headlines/Short Notes), mentions a six-day class conducted by the Association at Manjari sugarcane farm in Poona, for farmers from different regions. It reports the participation of about 25 farmers from various regions, including Nasik, Nagar, Poona, Kolhapur, Belgaon, Satara, Karvaar, Solapur, and Goa. It also mentions a demonstration of cultivation practices of sugarcane for about 60 to 70 farmers.

¹⁵ The September 1933 issue of *Shetki aani Shetkari* reports that these efforts were largely appreciated by the provincial Government and by the Governor. At the same time, the Department of Agriculture appointed its own experts for the purpose of dissemination.

¹⁶ The Gazetteer says: "The Association conducted, through several of its own members, intensive rural development work in a group of 19 villages around Khed–Shivapur, situated about 14 miles from Poona on the Poona–Satara Road. In co-operation with several departments of the Government, a good deal of ameliorative and developmental work was achieved in this area. Members of the Association have been engaging enthusiastically in the grow-more-food campaign both by helping actual cultivation and by offering their expert advice."

the Governor of Bombay Presidency, Lord Willingdon, were members of the Association, and it enjoyed the continued patronage of the rulers of the Princely States. By the 1920s, other local associations had come up in the Presidency.¹⁷

By the beginning of the 1930s, the priorities of the Deccan Agricultural Association witnessed a change. It now opted for the more diffused objective of *gramoddhar* (village improvement).¹⁸ Agricultural modernisation remained important, but only as one of many aims rather than the main focus. It also confined its activities geographically to the region around Poona.

Shetki aani Shetkari

Shetki aani Shetkari, the Marathi periodical published by the Deccan Agricultural Association, began publication almost immediately after the Association was founded. Its first issue came out in June 1910, and the periodical had a successful run for 41 years. Within the first ten years of its existence the subscriber base of the periodical reached 4,000, which included subscriptions from the Department of Agriculture¹⁹ that in fact subsidised the periodical.²⁰ Its circulation by the fourth year of publication had reached an impressive 4,224 copies, of which 1,500 copies were subscribed by the Government. Another 279 copies were bought by the

¹⁹ "Aamcha Choutha Vadha Diwas" (Our Fourth Birthday), June 1913, Shetki aani Shetkari, September 1933.

¹⁷ The Gazetteer notes: "The work of popularising improved methods of agriculture, such as the introduction of the iron plough, and the use of chemical fertilizers and of improved seeds, which was done by it in its earlier years, has latterly been taken up directly by the State Department of Agriculture and by other locally constituted bodies." ¹⁸ The September 1933 issue of *Shetki aani Shetkari* points out that around the 1920s, there was some dispute among the members of the Association which affected its work. Some of the members, however, decided to make an effort to revive the Association, and a meeting was called for under the chairmanship of an original member, Babasaheb Kamat, in 1929. It was decided that in view of the increased activity of the Department of Agriculture to disseminate modern agricultural knowledge, and due to the establishment of many local agricultural associations, the Deccan Agricultural Association, with the assistance of the provincial Government, should focus on some activity other than its original objectives. It was thus decided that gramoddhar, which aims for improving the well-being of the cultivators in a holistic sense, should be the new objective of the Deccan Agricultural Association. This initiative was led by three members of the Association, namely, Gopal Krishna Devdhar, Jagganath Maharaj, and B. P. Wagholkar. See also "Khedyanchi Sarvangin Sudharna" (An Overall Improvement of the Village), Shetki aani Shetkari, June 1929, which talks about a general body meeting of the Deccan Agricultural Association, where the decision about initiating a programme on gramoddhar was taken. This sudden shift of programme perhaps demands greater attention, which is outside the scope of this article. The early twentieth century witnessed important experiments around the idea of rural development, like Sriniketan in Bengal by Rabindranath Tagore, the "village uplift" programme by F. L. Brayne in parts of Punjab, the "rural reconstruction movement" in the state of Baroda, the "Martandam Young Men's Christian Association (YMCA) near Trivandrum (now experiment" by the Thiruvananthapuram), and the Gandhian experiment for rural reconstruction at Sevagram in Wardha in the 1930s. In fact, the idea of village improvement through community-level initiatives finds a mention even in the report of the Royal Commission on Agriculture in India. See Royal Commission on Agriculture in India: Abridged Report, pp. 59–61.

²⁰ The *Report of the Royal Commission on Indian Agriculture* (1928) mentions that the Department of Agriculture of Bombay Presidency subsidised two monthly agricultural magazines. The second was published by the Dharwar district agricultural association in Kannada.

members of the Deccan Agricultural Association, while the remaining subscribers were scattered across Bombay Presidency and the Central Provinces.²¹

The precursor to *Shetki aani Shetkari* was *Shetkari*, a late nineteenth-century periodical that was arguably one of the first periodicals in Marathi devoted to agriculture and related issues.²² The Deccan Agricultural Association purchased the rights to *Shetkari* and renamed it. Ganesh Narayan Ghotavdekar, the editor of *Shetkari*, was invited to join the newly set up editorial board of *Shetki aani Shetkari*.²³ The other editorial board members were Dr Harold Mann, Principal of the Agricultural College in Poona, Gopal Krishna Devdhar, and Ganesh Keshav Kelkar.²⁴

The objective of the periodical, as mentioned earlier, was to disseminate information about modern scientific methods of cultivation in Marathi.²⁵ It published regular discussions on various aspects of agriculture, animal husbandry, and later, rural development, including new techniques for ploughing and other agricultural operations, information on seeds and crops, new methods of cultivation, the importance and functions of cooperative societies, animal diseases and their cures, the importance of agricultural education, and improved techniques of storage and transportation. Monsoon and rainfall data, monthly operations for major crops, manures and fertilizers, improved fodder, and village community advancement in general also featured.²⁶

Shetki aani Shetkari was a substantive offering. Each issue was roughly 40 to 42 pages, comprising eight to ten essays. Its cover page, for the first ten years, carried a sketch of a farming couple. In the 1920s, the cover sketches changed, though the theme remained agriculture.

On its inside pages, the periodical had sketches and black-and-white photographs depicting cultivation tools and techniques. For instance, an essay on the cost and

²¹ "*Aamcha Choutha Vadha Diwas*," in the June 1913 issue, also says that the periodical had already reached different parts of Bombay Presidency and the Central Provinces, with Poona having a subscriber base of 204, Thane 107, Solapur 143, Kolhapur 96, Khandesh 138, Nashik 124, Ahmednagar 242, Nizam Hyderabad 84, and so on. Such details are not available for a later period.

²² Shetkari began publication in January 1883 under the editorship of Ganesh Narayan Ghotavdekar and Sakharam Chimanaji Gole, from Umravati (now Amaravati) district in Maharashtra. Interestingly, Ghotavdekar and some of his friends set up an association named the Shetichi Sudharana Karanari Mandali (Association for the Improvement of Agriculture) in Umravati, in the last quarter of the nineteenth century.

²³ Ghotavdekar was also a member of the publication committee of the Association. The committee, in its initial stage, had five other Indian members, namely: Professor G. K. Kelkar, P. C. Patil (Divisional Agricultural Inspector), G. K. Devdhar (a member of the Servants of India Society, Pune), V. A. Gupte (Deputy Collector of Ahmednagar), and Professor A. B. Latthe (Rajaram Kolhapur College). Two British officials, Dr Harold Mann (Principal of the Agricultural College, Poona) and Professor J. B. Knight (Professor of Agriculture in the College of Science, Poona), were also part of the publication committee.

²⁴ Editorial, *Shetki aani Shetkari*, June 1910.

²⁵ See *Shetki aani Shetkari*, June 1910.

²⁶ See *ibid*.

benefits of the Gujarati shallow plough, appearing in the July 1913 issue, was accompanied by a photograph of the plough.²⁷ A January 1914 issue had a detailed commentary on the steam plough with a full-size black-and-white photograph.²⁸ Similarly, the September 1920 issue carried a discussion on the hand pump, with a diagram demonstrating its parts and uses.²⁹ Discussions on livestock and veterinary matters would invariably be accompanied by pictorial representations.³⁰

A modern, science-based vision for the improvement of agriculture informed the editorial stance of *Shetki aani Shetkari*, at least in the first decade of its publication. Its June 1920 issue published an article titled "*Aamchi Geli Dahaa Varshe*" (Our Last Ten Years), which categorised and listed the topics covered by the journal in this period. The list underscores the periodical's avid and uncompromising commitment to the founding vision of the Deccan Agricultural Association, namely, the modernisation of agriculture in India. In this ten-year period were published 32 essays about types of soil, 50 essays on manures and fertilizers, 60 articles on implements for tilling (including ploughs), 200 articles providing information on crops, 60 essays on the subject of livestock care and their diseases, 14 related to poultry, and 75 pieces on horticulture. Apart from this, 20 essays were published on the subject of agricultural education and agricultural schools, 104 on cooperatives, and 410 on the general improvement of agriculture.

The "Letters to the Editor" column of *Shetki aani Shetkari* reflected the active engagement of its readers with the issues raised in its pages. Readers would write in with their experiences, whether in trying a new method or technique of farming, or on the efficacy of a new manure. In turn, the editors or other readers would respond with their own comments. The "question–answer" section was popular and reflected the extent of readers' involvement.³¹ The letters came from different regions of the country, including Berar and the Central Provinces. The readers were overwhelmingly from the rural landowning classes.

The journal published reports by the Department of Agriculture, reported on the work of the experimental farms, and printed handouts that gave basic information on specific subjects. Occasionally, it published information related to agriculture in other parts of the subcontinent. There were also advertisements from agricultural schools mentioning their admission dates and procedures, as well as advertisements

²⁷ "*Gujarathetil Kulav*" (Gujarati Type Shallow Plough), editorial, *Shetki aani Shetkari*, July 1913.

²⁸ "Vafecha Nangar" (Steam Plough), Shetki aani Shetkari, January 1914, pp. 246–7.

²⁹ "Nalika Kuppansambandhi Mahiti Va Tyacha Upayog" (Information on Borewells and their Usage), by V. Y. Chitale, overseer, Shetki aani Shetkari, 4th issue, September 1920, pp. 87–9.

³⁰ For instance, the June 1913 issue carried a detailed article titled "*Gurana Honara Manjari Rog Va Tya Varil Upay*" (Actinomycosis Disease in Cattle and Ways To Treat It), by Annarao Bhimrao Gadagkar, a veterinary doctor from Dharwad.

³¹ This correspondence functioned like a dialogue between the subscribers and the editors. For instance, in the January 1915 issue, a subscriber asked about the appropriate time for the re-plantation of mango. The answer to the query was given by a botanist in Bombay Presidency.

for different agricultural implements, seeds, and fertilizers. We shall review some of this content later in this paper.

The articles published in the periodical fell broadly under two themes. The first addressed issues relating to the productive forces in the countryside, i.e. issues of land improvement, fertilizer, seeds, implements (especially the plough), and so on. The second theme related to ideas and concepts around agricultural modernisation. In the following sections we discuss both these themes.

Agricultural Modernisation for National Development

It must be noted that observations on the abysmal socio-economic conditions under which agriculture was carried out in India under British colonialism remained strikingly absent in the pages of *Shetki aani Shetkari*.³² The editors of the journal set out their vision and purpose in the very first issue. They wrote:

It is increasingly becoming obvious to the people that there is a close relationship between agriculture and national wealth . . . Two-thirds of Indians are dependent on agriculture and this in turn implies that 20–21 crore people depend on agriculture for their daily bread and butter. The nation can never be prosperous if such large numbers of people are not able to satisfy their daily needs. It is for this reason that we have to reform agriculture. For this improvement in agriculture, we have to make an effort to utilise new and scientific methods on an extensive scale.³³

An essay in the August 1913 issue underlined the necessity of improved and modern techniques in the following words:

As the world progresses, humans are increasingly substituting their intelligence for physical labour. The nations which have climbed the stairs of development perform the tasks that their ancestors used to do with their hands with the power of intellect, and the use of machines that enable non-living objects to work for them. The same situation is approaching in Hindustan. Let us take the instance of agriculture. Our ancestors used to cultivate using wooden sticks and stones. But after some time they started using the spade made of iron and wood that saved their labour. After this, the iron plough, shallow plough, and seed drill saved more labour. This norm has advanced in the developed countries to a much higher level compared to us. To summarise: the situation of Hindustan is changing continuously as in other parts of the world. Day by day, it is reaching a stage where there is no escape from the usage of machines and technology.³⁴

³² By contrast, Jyotirao Phule, the crusading social reformer of the late nineteenth century, concluded that the Brahminical system of education, which prevents the cultivating classes from gaining knowledge, was to be blamed for the depression in agriculture. As a matter of fact, *Shetki aani Shetkari* and a few other periodicals like *Chitramay Krushival* shared an understanding of agricultural modernisation far removed from that of Phule.
³³ Editorial, *Shetki aani Shetkari*, June 1910.

³⁴ "Sudharlelya Shetki Awjaranche Deshi Karkhane" (Indian Factories for Improved Agricultural Implements), editorial, Shetki aani Shetkari, August 1913.

It therefore recommends the immediate adoption of improved implements for ploughing, shallow ploughing, sowing, and harvesting, while also advocating their manufacture locally.³⁵

The periodical also established, from its very first issue, a clear link between agricultural modernisation and "national development." The former necessarily must lead to the latter.³⁶ India is an agricultural country, a nation of cultivators. Therefore, any substantive national development would inevitably require agricultural modernisation – thus ran the argument.³⁷ This oft-made appeal is illustrated in this paragraph:

Eighty percent of the people of our country depend on agriculture. It is thus not inappropriate to call it an agricultural nation. The progress of cultivators therefore implies development of the nation. The condition of cultivators in this nation is worse than in other nations and it is due to this reason that this country, which is capable of feeding the whole world, faces starvation every year. Once the Indian cultivator develops, India will no longer have to depend on other nations.³⁸

Comparisons with the state of agriculture in other countries, as seen in this comment, appear quite a few times in *Shetki aani Shetkari*. Even the introductory essay cited earlier contains the plea to improve agriculture by following the path of western nations such as the United States of America, England, and Germany, in order to increase national wealth. Until this happens, "our nation cannot raise its head in dignity," the essayist claimed.³⁹ As the author of an article in the January 1922 issue noted:

A Japanese farmer with only six acres of land is capable of feeding himself and his family for the whole year. In addition, he is also able to educate his children. An Indian farmer, even with sixty acres of land has to struggle for the second meal, let alone [being able to] consider the education and healthy upbringing of his children.⁴⁰

³⁹ Editorial, *Shetki aani Shetkari*, June 1910.

³⁵ *Ibid.* See, for instance, an essay titled "*Amchya Shetichi Saddhya Sthiti*" (The Current Condition of Our Agriculture) that appeared in the June–July 1921 issue, the Marathi translation of a commentary by Harold Mann. The essay contrasts the conditions of Indian cultivators and their western counterparts. It attributed the backwardness of the Indian cultivator to indebtedness and land fragmentation. The most important reason for the lack of productivity, however, was the lack of knowledge of new methods of tilling and cultivation, it argued.

³⁶ An informative commentary titled "*Shetki Khate Va Tyavaril Tika*" (Critique of the Department of Agriculture), which appeared in the April 1930 issue, critically examined the work of the Department of Agriculture, the "nation-building departments" of India.

³⁷ For instance, the essay "*Shetki*" (Agriculture) by Kashinath Raoji Palvankar, in the December 1920 issue, argued that national development requires the extension and improvement of agriculture.

³⁸ K. B. Baber, "*Aamchya Shetichi Sadhya Sthiti aani ti Sudharnyache Upay*" (The Current Condition of Our Agriculture and Ways to Improve It), *Shetki aani Shetkari*, December 1920.

⁴⁰ K. B. Baber, "*Hindusthanatil Sampratchi Sheti*" (Current Conditions of Agriculture in Hindustan), *Shetki aani Shetkari*, September 1922.

The same essay goes on to argue that the production of foodgrains in India had declined in absolute terms, and that this dismal state was primarily due to the lack of knowledge among Indian cultivators.⁴¹

Illiteracy as a fetter to agricultural modernisation was an argument that appeared frequently in *Shetki aani Shetkari*. Writing in the March 1921 issue, the writer of an essay titled "*Shetkari Manasanchi Daina*" (The Plight of Farmers), while commenting on the low levels of literacy among the cultivating classes, wonders if "the majority of the cultivators in Bombay Presidency have even heard about the Agricultural Department and its efforts to reform agriculture."⁴² He says,

In case a village resident reads out essays from *Shetki aani Shetkari* to the local farmers, they will think that these are mythological stories from the *Puranas*. These stories will entertain them for some time. To summarise, lack of education is the main barrier [to the progress of cultivators]. To transcend this problem, it is imperative that the Government and the educated middle class deal with the problem of education of cultivators as a priority.⁴³

He concludes by making an appeal to the Deccan Agricultural Association to undertake the work of spreading education among cultivators.⁴⁴ In fact, the education of cultivators appears as an important aspect of agricultural reform,⁴⁵ and its importance for agricultural modernisation continued to be articulated for the next few decades.⁴⁶ A more critical commentary on the strengths and weaknesses of Indian farmers, titled "*Hindi Shekryanche Gun Dosh Va Te Sudharnayache Upaay*" (The Strengths and Weaknesses of the Indian Cultivators, and the Ways to Improve Them), published in the February 1930 issue, begins with the premise that Indian cultivators are inferior to their western counterparts with respect to intelligence, courage, and physical capability.

If we do an in-depth study of the Indian cultivator, then we will have to admit that he does not like to take any initiative for doing something new by thinking for himself. He will stick to the traditional methods. He is God-fearing (*Dharam-Bhola*) and prejudiced, and therefore is not ready to experience any new improvement. He is not clean and therefore not physically fit, and does not have the strength to work in the field. He is illiterate, lacks foresight, and is careless, and therefore is often misguided by cunning people. He goes to lodge an FIR for small and petty reasons. He spends large sums for the purchase of jewellery and therefore cannot afford to spend on more profitable

⁴¹ *Ibid*.

⁴² D. B. Kadam, "Shetkari Mansachi Daina" (The Plight of Farmers), Shetki aani Shetkari, March 1921.

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ The education of cultivators was articulated as one of the primary ways to develop agriculture in the first issue of *Shetki aani Shetkari*, June 1910.

⁴⁶ Another essay appearing in the July 1934 issue of the journal clearly states that education is the foundation of any further development of agriculture or of village reform (*gramoddhar*) in general. See Chimanrao Malharao Purandare, "*Shetki Va Sushikshit Bekar*" (Agriculture and the Educated Unemployed), *Shetki aani Shetkari*, July 1934.

ventures. He spends beyond his capacity on marriages and religious rituals, and is trapped in the moneylender's clutches. He is a fatalist and therefore depends on God for everything. He accepts all problems as his destiny and God's will, and is passive about them.⁴⁷

Notwithstanding his dismissive comments, the author goes on to claim that these deficiencies of the Indian cultivator need not be considered as either inherent or permanent. Rather, they arise from the circumstances in which the cultivator finds himself. Given the difficulties faced by him, his continued survival is in itself evidence of his potential and perseverance. Proper education, the author claims, is the only way to liberate Indian cultivators from the fetters that bind them, and bring about their holistic development.⁴⁸ The responsibility to educate them, he writes, lies with altruistic and educated persons and the Government.⁴⁹

By the first decade of the twentieth century, there were already four institutions imparting agricultural education in Bombay Presidency.⁵⁰ The first was the Agricultural College in Poona, which provided a three-year course leading to a Bachelor's degree in Agriculture (B. Ag.), taught in the English language. The Bombay Agriculture Department absorbed some of the graduates from this college. Others obtained employment in similar departments in other provinces.⁵¹ Some applied their advanced knowledge to improve farming practices on their own lands. There were also those who were employed by big landowners in order to scientifically manage cultivation on their lands.⁵²

The second avenue of agricultural education was also offered by the Agricultural College in Poona, but as a one-year course in English, the main objective of which was to attract big landowners to enrol and learn scientific methods that they would then apply in their own fields. These courses imparted practical knowledge that had been successfully tested in the experimental farms, and could therefore be directly utilised by landowners in their farms.⁵³

Thirdly, there was the Marathi *shetki shala*, or agricultural school, which imparted agricultural education primarily to the children of traditionally agricultural families.⁵⁴ The Royal Commission referred to these as agricultural

⁵³ Ibid.

 ⁴⁷ N. V. Mandke, "Hindi Shetkaryanche Gun Dosh Va Te Sudharnayache Upaay," Shetki aani Shetkari, February 1930.

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ This information is based on the report of the Bombay Agriculture Department, 1911–12. Excerpts from the report were published in an essay titled "*Mumbai Shetki Khatyacha san 1911–12 Saalcha Ahwala Pasun Shetkaryanni Shikawayacha Goshti*" (Lessons to be Learnt by Farmers from the Report of the Department Of Agriculture, Bombay, 1911–12), *Shetki and Shetkari*, July 1913.

⁵¹ Ibid.

⁵² Ibid.

⁵⁴ *Ibid.* Also see *Royal Commission on Agriculture in India: Abridged Report*, pp. 64–5, for details of these vernacular schools in Bombay Presidency.

schools of the vocational type, and stated that there were six such schools in the Bombay Presidency.⁵⁵ They offered a two-year course that taught the basic operations of cultivation using modern methods and techniques, as developed in the experimental farms.⁵⁶ The language of instruction here was Marathi, and the course was offered free of cost.⁵⁷ The schools were residential in nature and mostly had a farm associated with them for experimental learning.⁵⁸ Shetki aani Shetkari frequently published information about these schools, including advertisements on how to apply for admission. It is clear that there was a consistent effort to popularise these vernacular agricultural schools, though the exact numbers of those trained in them are not known.

Finally, there were short-term classes, generally held at different agricultural farms across the Presidency, which were conducted for only one-and-a-half months each and were crop-specific. The Manjari farm in Poona, for instance, conducted short-term classes on sugarcane cultivation.⁵⁹

It is apparent that most of the courses mentioned above only encouraged students from landowning families. For instance, the advertisement for a school in Loni-Kalbhor village, published in the February 1915 issue of *Shetki aani Shetkari*, mentions ownership of land by a father or uncle as a mandatory criterion for admission. It also asks the applicant to

⁵⁵ In fact, the Royal Commission contrasts this experiment of "vocational agricultural schools" in Bombay Presidency with the "ordinary rural secondary schools" popular in Punjab, "in the curriculum of which elementary agriculture is included." The Commission appears to have been critical of these schools in Bombay Presidency. It stated: "After the most careful consideration, we have come to the conclusion that in no scheme of rural education, the cost of which is defrayed by Government, ought schools of the Bombay type to find a place. There is no evidence that there is a popular demand for them. They appear to us to be an artificial addition to the educational system and in no way a natural development of it. They are very costly and lead nowhere. The boys who attend them receive no instruction in the subjects required by high school and college. It is only in exceptional circumstances that a parent is prepared to decide upon the future career of a promising boy at the early age of 13 or 14. The establishment of schools of the Bombay type merely means that an agency far more expensive than the normal is employed to train boys destined for work on the land." The Punjab type of school, on the other hand, the Commission opined, "has much to recommend it."

⁵⁶ "Mumbai Shetki Khatyacha san 1911–12 Saalcha Ahwala Pasun Shetkaryanni Shikawayacha Goshti" (Lessons to be Learnt by Farmers from the Report of the Department of Agriculture, Bombay, 1911–12), Shetki aani Shetkari, July 1913.

⁵⁷ It should be noted that these schools often did not follow such rigorous standards; for example, the school in Alibag, sponsored by Sardar Bilwalkar, a *jagirdar*, which started functioning in 1912, admitted students from Standard 3, and also gave special incentives like clothes, food, and hostel accommodation to attract students. See "*Alibaag Yethil Shetkichi Shaala*" (Agricultural School of Alibag), *Shetki aani Shetkari*, April 1915.

⁵⁸ An essay in the July 1910 issue of *Shetki aani Shetkari*, titled "*Shetkaranchi Shikshan*" (Education of Farmers), talks in detail about these schools. Describing the school in Poona, it says that the curriculum included 16 hours of practical work in the farm every week. The author claims that "Practise of cultivation is the true school of agriculture." There are many such essays to be found in the pages of this periodical which describe these schools in some detail.

⁵⁹ See "Mumbai Shetki Khatyacha san 1911–12 Saalcha Ahwala Pasun Shetkaryanni Shikawayacha Goshti", Shetki aani Shetkari, July 1913; also see "Manjari Farm var Bharavanyat yenara Usaacha Varg" (Sugarcane Cultivation Lessons Conducted on the Manjari Farm), Shetki aani Shetkari, January 1927. submit details about the land revenue paid by the family, irrigation facilities, and other land details, all to be attested by the *patil* (village headman).⁶⁰ The age criterion mentioned in the advertisement is 14 to 17 years.⁶¹ We find similar advertisements for schools in different parts of the province, such as Alibag and Dhule.

On rare occasions, letters of appreciation from landowners addressed to the periodical reported the benefits of agricultural education in improving yield and its role in facilitating the adoption of new crops on a limited scale.⁶² There was overall appreciation of the curriculum and work of the agricultural schools, especially the strong practical component in their courses.

Special mention must be made of the essays on agricultural education by K. B. Baber, who was the principal of a school in Bhilawadi and a prolific writer on a multitude of subjects. In this specific issue, he wrote that while the education imparted in the province focused on farming on irrigated land, most of the cultivators in the region were farming on dry land.⁶³ This, he claimed, reduced the practical utility of the education. He urged that there should be greater improvement in dry land farming, and an increase in the reach of information published by the Department of Agriculture; he considered this to be the responsibility of the Government and the *patils.*⁶⁴ Baber, through his articles, brought to light the fact that the improvement efforts undertaken by the Department of Agriculture rarely reached the cultivators.⁶⁵

Striking a note uncommon for the pages of the journal, Baber also made a radical argument for compulsory education of all cultivators, or those he termed as the *Bahujan Samaj*.⁶⁶ In an essay appearing in the November 1921 issue of the journal, he referred to a Government committee that had prepared a questionnaire for farmers to elicit their views on compulsory education. In response to the question, "Is there any specific caste or community in society that will oppose compulsory education, and if that is the case, what could be the reason for such opposition?",⁶⁷

⁶⁷ Ibid.

 ⁶⁰ "Marathi Shetki Shala" (Marathi [Medium] Agricultural School), Shetki aani Shetkari, February 1915.
 ⁶¹ Ibid.

⁶² See, for instance, the Letters section of the October 1914 issue, where a letter from a farmer, Gangadhar Govind Thakur, belonging to Vite village discusses the advantages he had been able to obtain due to the assistance of his nephew who was educated in an agricultural school. He was able to bring new potato seeds from the school farm and use improved methods to cultivate them, which then resulted in better yields. The letter also thanks the agriculture officer for providing him with assistance with chemical fertilizers.

⁶³ K. B. Baber, "Shetkari aani Shetkiche Shikshan" (The Farmer and Agricultural Education), Shetki aani Shetkari, September 1921.

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ *Ibid.* Baber here is drawing from Phule and the Satyashodhak Samaj. He remarks, "Due to the movement of the Satyashodhak Samaj and the efforts of the non-Brahmin leaders, the illusion among the farmers that they should not educate themselves has dissolved." He observes an enhanced enthusiasm among the farmers to be educated even at the cost of extra taxes.

he offered the view that only two classes of people might oppose such a programme. One class comprised the educated middle class for whom education acted as a tool to control the *Bahujan Samaj*, over whom they would not want to lose control. The other class comprised labourers as well as those who were even poorer than them. Their opposition would stem from the belief that their "children lacked the ability to learn," and that even education would not be of any help in providing employment to them.⁶⁸ Some opposition could also come from farmers, in view of the fact that compulsory education would deprive them of family labour, especially during the harvesting season. Baber therefore concluded by recommending flexible school hours during the harvest season.⁶⁹

Clearly, the social and economic dimensions of agricultural production and the state of rural society could not be entirely shut out from the discussion on agricultural modernisation. But the expression of such viewpoints, as we have noted, was not common. Rarely do we find any articulation of the burdens of excessive taxation, or mention of the rampant practice of usury. There is a rare commentary comparing the interest rate of *tagai* loans given by the Government,⁷⁰ loans given by moneylenders, and those given by cooperative societies.⁷¹

The rigid caste system and its stranglehold over land ownership found little coverage in the magazine, despite the strong mobilisation against caste discrimination that Phule had initiated, and that the editors, contributors, and readers were undoubtedly aware of.⁷² The few references to caste discussed the need to bring about minor modifications in the system in order to suit the changing agricultural scene. For instance, an essay published in the June–July 1925 issue discussed reforms needed in the *balutey* system in "modern" times.⁷³ Avoiding any radical solutions, the essay criticised the disproportionate burden on the cultivators under

⁶⁹ Ibid.

⁶⁸ Ibid.

 $^{^{70}\,}$ These were low-interest government loans given for the purpose of agricultural improvement. They were also referred to as takawi loans.

⁷¹ See the essay by J. J. Padhye (special *mamledaar*, Satara district) titled "*Paraspar Sahaykari Mandalya Agar Patpedhyasambandhi Khedyalit Lokankarita Sankshipt Mahiti*" (Summary Information on Cooperative Societies and Cooperative Banks for People in Villages), in the March 1915 issue.

⁷² This absence is again in contrast to the writings of Phule, which appeared three to four decades earlier and portrayed a serious concern regarding the pre-modern relations persisting in agriculture. This, he argued, was the primary reason for the problems of agriculture and of cultivators. However, we do find some writings which talked about the eating habits of specific castes, especially "untouchables," or described the problems they faced regarding the availability of resources like water. See, for instance, the essay "*Hindusthanatil Kombadya Palanarya Jati Va Kombadyancha Va Andyancha Vyapar Karanaare Lok*" (Castes [generally lower castes] in India Involved in the Business of Poultry) by Jacob in the August 1926 issue, discussing the lives of people in the poultry business; or the essay "*Bhil Lokancha Kherya Sathi Vihiri*" (Scheme Related to Wells for Villages Belonging to the Community of Bhils) by the same author in the April 1926 issue, discussing the water problem of the Bhils.

problem of the Bhils. ⁷³ Under the *balutey* system, various caste-based occupations, like carpentry, smithery, priesthood, etc., provided services as per the needs of the cultivators and received a share of the agricultural produce in return. The castebased service providers were called *balutedars* and the service they offered was called *balute*. It was similar to the *jajmani* system which was prevalent in many other parts of India.

the *balutey* system, and argued for a mechanism of exchange between the farmers and the different service-providing caste groups that was fairer to the former.⁷⁴

Caste found mention as a specific obstacle to the use of fertilizer made from animal bones (*hadanche khat*): caste-based taboos prevented most castes, including those engaged in cultivation, from utilising it for improving productivity.⁷⁵ A contributor wrote,

It is considered impure to touch bones. Only *Mahars* and *Mangs* can touch them. Bones are considered as impure as human waste. However, animal waste is not considered impure. It is illogical that when cow urine is regarded as pure, how can the bones be impure? Is it not unfortunate that while in front of our eyes lakhs of tonnes of bones are being exported, we are still stuck in the debate on purity and impurity?⁷⁶

The implied criticism of caste-based taboos in this comment was not accompanied, however, by an appeal to fight the caste system. The author concluded, "Since the *Mahars* of the village are anyway involved in selling the bones to traders, they will not have any problem in selling them within the village."⁷⁷ A similar tone can be found in another essay, appearing almost a decade later, which recommended a break from such irrational concepts and prescribed the use of bone manure for the improvement of agriculture.⁷⁸

In the second decade of the twentieth century there was increasing reference in the journal to the phenomenon of land fragmentation as a serious hindrance to agricultural improvement. An essay appearing in the September 1921 issue, titled "*Shadhya Sthitit Shetki Sudharnes Upaay*" (Ways to Improve the Current Condition of Agriculture), listed four principles for improving agriculture, namely: (1) consolidation of land; (2) restricting animal herds of nomadic pastoralists (considered to be a source of crop damage); (3) conservation of forests; and (4) easy provisioning of *tagai* loans.⁷⁹ On the specific problem of land fragmentation, the essay noted:

The laws under the Hindu and Muslim religions invariably lead to fragmentation of land. This [land fragmentation] is detrimental to any improvement in agriculture. Among the

⁷⁴ "Shetkaryanche Balute Va Dharamadaye" (Duties of Farmers as Defined by the Balute System and by Religion [religious laws]) Shetki aani Shetkari, June–July 1925. The same issue was discussed in further detail by the author in another essay appearing in the September 1933 issue, where he described how the various balutedars, priests, and godmen loot the produce of cultivators. See "Karjgrast aani Daridryapidit Shetkaryanvar Dharmadayanche Doijad Oze" (The Burden of Religion on the Indebted and Destitute Farmers), Shetki aani Shetkari, September 1933.

⁷⁵ "*Hadake va Hadakanchi Khate*" (Bone and Bone-Meal Fertilizer), *Shetki aani Shetkari*, September 1911.

 ⁷⁶ Ibid.
 ⁷⁷ Ibid

⁷⁸ Shesharao Ganesha Pande, "Dharmachya Navakhali" (In the Name of Religion), Shetki aani Shetkari, January 1930.

⁷⁹ Shankar Dinkar Damble (Assistant Agricultural Organiser, Verul), "Shadhya Sthitit Shetki Sudharnes Upay" (Ways to Improve the Current Condition of Agriculture), Shetki aani Shetkari, September 1921.

many things that are imperative to the cause of agricultural improvement, land consolidation is the most important. Consolidated land holdings help in saving labour, improving security, and reducing the use of fertilizers, which then leads to increase in profits. That is why it is of such advantage to agriculture. This reality has not been brought to the attention of the landowners, and they are all thus facing the negative consequences.⁸⁰

The arguments in these writings appear to draw from the work of some colonial administrators like George Keating (Director of Agriculture, Bombay Presidency) who had thoroughly studied and criticised the phenomenon of land sub-division and fragmentation as an obstacle to advancing modern agricultural techniques in Bombay Presidency.⁸¹ Another essay appearing in the August 1921 issue of *Shetki aani Shetkari*, titled "*Shetkaranchi Bhaubandhaki*" (Farmers' Brotherhood), referred to the efforts made by some members of the Bombay Legislative Council in the second decade of the twentieth century to bring about a law preventing land fragmentation beyond a defined limit.⁸² These efforts, however, were opposed by the other members of the Legislative Council. The author of the essay criticised such opposition, claiming that it could find favour only "among those sections of cultivators who are lazy and do not want to go out and work."⁸³ Indeed, a number of commentaries argued for a gradual change in customary practices that led to the sub-division of land. An editorial appearing in the January 1928 issue opposed the enactment of a law to prevent land sub-division, and noted,

It is neither feasible nor correct to suddenly bring about an Act to prevent land subdivision. We should not reject the hereditary rights of the descendants as it will not be a just move. However, we should be rational in dividing land, deciding beforehand some limits to the process of division. In future, after some thought, this process of land sub-division can altogether cease.⁸⁴

It can perhaps be inferred that these writings reflect a tendency to equate modernisation of agriculture with an expansion of the productive forces through the utilisation of modern science and technology and the spread of education among cultivators, without much concern for the changes that were required in socioeconomic institutions for successful absorption of such methods and techniques. In fact, the only institutional change the writings emphasised was that of land consolidation. However, even here, serious discussion on the mechanisms by which to achieve this was simply not forthcoming.

⁸⁰ Ibid.

⁸¹ See George Keating, "Rural Economy in the Bombay Deccan" (1912) and "Agricultural Progress in Western India" (1921). Vasant Kaiwar notes in "The Colonial State, Capital, and the Peasantry in Bombay Presidency" (1994), that the problem of land fragmentation was identified as "a built-in disincentive to capital investment" in the *ryotwari* system as early as the mid-nineteenth century itself.

⁸² K. B. Baber, "Shetkaryanchi Bhaubandki," Shetki aani Shetkari, August 1921.

⁸³ Vasant Kaiwar mentions the efforts taken by Keating to bring about a Bill for land consolidation in Bombay Presidency, which was however submitted in a much diluted form in 1918.

⁸⁴ "Shetanchi Watani" (Fragmentation of Agricultural Land), editorial, Shetki aani Shetkari, January 1928.

One important reason behind the strong support for scientific methods and techniques in agriculture was the promise of increased farming profits. The argument advanced was that the application of modern tools and methods reduced the cost of cultivation, more so in the face of increasing labour costs. For instance, an editorial in the July 1913 issue of the journal claimed that in view of the growing number of ginning mills and other businesses in cities like Bombay, labourers from the countryside were migrating to the cities with their families, leading to a scarcity of labour for agricultural operations. It concluded that in such a situation, it was imperative to increase the use of modern tools and implements. The author gave the example of England and America, where

new and improved tools and agricultural implements were developed and were immediately adopted. Hence their agriculture experienced the highest form of development and at the same time the need for labourers declined.⁸⁵

The essay then went on to describe the cost and benefit of using the Gujarati shallow plough as against human labour. 86

Such comparisons that depicted the cost advantage of tools and implements over human labour, as well as that of newer and improved implements over traditional ones, appeared quite frequently in the writings published in Shetki aani Shetkari. For instance, another commentary from the same issue of the journal gave a detailed comparison between the traditional leather *mot*⁸⁷ and the modern iron *mot* manufactured by Bhide and Son's Company, Bombay. The comparison was based on experiments done on the Dhule experimental farm, conducted by the British officer in charge. It showed the difference between the two in terms of the costs of production and purchase, the volume of water utilised per round of usage, the cost of repair and maintenance, and the resale value. The results of the comparison clearly showed a cost advantage of over three times for the iron mot as against the leather mot.⁸⁸ This was echoed in the August 1933 issue of the journal by Gajmal Chimnajee Patil, who said he had used the iron mot for eight years and was still using the same implement.⁸⁹ His total expenditure on repair and maintenance in this period had amounted to Re 1 and 4 annas. Had he used the traditional leather mot, it would have had to be replaced at least six times over the eight years, incurring a maintenance cost of Re 1 and 8 annas in addition to the cost of replacements, he said.90

⁸⁵ "*Gujarathetil Kulav*," editorial, *Shetki aani Shetkari*, July 1913.

⁸⁶ Ibid.

⁸⁷ *Mot* is a tool used in western India for irrigation from wells. The traditional *mot* consisted of a big leather pouch that was used for fetching water from the well with the help of bullocks. This water was led to channels connected to the land that was to be irrigated. The modern iron *mot* replaced the leather pouch with an iron box.

⁸⁸ "*Lokhandi Motevar Abhipraya*" (An Opinion on the Iron Mot), *Shetki aani Shetkari*, July 1913. The author of this commentary was the Deputy Director of Agriculture (Bombay region).

⁸⁹ Gajman Chimnajee Patel, "Lokhandi va Katadi Mot" (The Iron and Leather Mot), Shetki aani Shetkari, August 1933.

⁹⁰ Ibid.

Such discussions about reduction in costs leading to an increase in profitability due to the utilisation of better and improved techniques appeared in the pages of the periodical through its lifetime. A commentary by K. M. Sonawane, a field-based investigator associated with the Seed Testing Department at the Poona Agricultural College, claimed in the June 1919 issue that despite the higher costs of good quality seeds, the comparative increase in productivity would be so high that it would lead to a higher profit even after compensating for the increased costs.⁹¹

As noted earlier, from the 1930s onwards, a new dimension to the idea of agricultural development gained focus in the pages of the periodical. There was greater emphasis on holistic development of the village, including matters related to health, sanitation, drinking water availability, education and so on, in addition to improvement of agriculture. Enhancing agricultural productivity now appeared as only one strand in this larger goal of "village development." This was an obvious reflection of the changes in the objectives of the Deccan Agricultural Association. Essays and commentaries on the idea of village improvement and the success of programmes that addressed this issue began to appear more frequently in the pages of *Shetki aani Shetkari.*⁹² This, however, did not affect the main focus of the periodical, which continued to be the promotion of new techniques and methods, and the application of modern knowledge to the practice of agriculture.⁹³

Dissemination of Modern Knowledge

The dissemination of modern scientific knowledge for the promotion of agriculture was a foundational objective of the Deccan Agricultural Association as well as its journal, *Shetki aani Shetkari*. The journal, through its columns, reflected the growing consensus on this between sections of the Indian landed elite and the colonial administration. In this section we look at some specific instances of such dissemination that frequently appeared in the pages of *Shetki aani Shetkari*.

Discussion on Land Improvement

Most of the discussions on land improvement were quite technical: for example, on the types and constituents of soil; improving the fertility of soil through different

⁹¹ K. M. Sonavane, "Perni Purva Biyanche Parikshakarun Pahane" (Seed Testing before Sowing), Shetki aani Shetkari, June 1919.

⁹² See, for instance, "*Khedyanchi Sarvangin Sudharna*" (The Overall Improvement of Villages), *Shetki aani Shetkari*, June 1929, which discusses in detail the idea of village development; the May 1933 issue of the journal had a discussion on the third assembly of the Maharashtra Gramoddhar Parishad, under the chairmanship of the ruler of the Princely State of Faltan, Nanasaheb Nimbalkar. The November 1933 issue of *Shetki aani Shetkari* described a meeting of *gram sudharaks* (Gramsudharakanchi Parishad) from different parts of Bombay Presidency, where they shared their experiences of the programmes under *gram sudhar*, and the December 1933 issue again discussed the experiments of *gram sudhar* in an article titled "*Gramsudharnecha Ek Prayog*" (An Experiment in Village Improvement).

⁹³ A cursory look at the contents of the periodical even till the late 1930s reveals that while there was an increase in the number of articles devoted to different dimensions of village improvement or rural development, the majority of the writings continued to deal with the agricultural production system.

operations like tilling as well as through application of inputs like *gaonkhat* (local/ field-based manures); the appropriate crops for specific soil types; the process of rain water percolation that would facilitate a second crop; and so on.⁹⁴ Here is a description of the process of retaining rain water in a soil type that has small granules of stone in it:

Try to plough deep to help water percolation. Use the DT2 plough for the operation of deep ploughing, then till the land using a subsoiler type of plough. This will convert the top 12–13 inches of soil into a fine layer. After this, cultivate jute and wait till it flowers and then bury the plant in the soil by ploughing again. Thereafter apply dung manure, horse-dung manure, and *gaonkhat* [local/field-based manure]. These operations will enhance the capacity of the soil to retain water. Make rows in the land and mix ash into it. Last, try cultivating crops like tobacco, onion, and chilli.⁹⁵

We also come across informative writing which describes the various ways in which the soil loses its fertility. The reasons include lack of manure, salinity due to overirrigation, application of artificial fertilizers without taking into account the composition of the soil, and soil erosion due to rain.⁹⁶

An important line of discussion that we frequently find in the writings on land improvement concerns water absorption in the soil and how it can be ensured at a low cost. A large part of the Marathi-speaking region in the Presidency was unirrigated, received scant rainfall, and was therefore drought-prone. An essay appearing in the September 1922 issue of the journal, titled "Korad Wahu Shetat Alpmoli Pan Bahuguni Sudharna" (The Improvement of Dry Land Agriculture at Minimum Cost), discussed the ways in which water in the soil could be retained by using traditional ploughs and other known methods. It prescribed a systematic approach to applying these methods. For instance, the essay argued that the locally popular plough, Shabul Nangar, which had traditionally been used for adding extra soil to support the crop, could also be used to make furrows. It cited the example of a village (name not provided) where this method had been challenged by the locals. A demonstration was therefore arranged, which then convinced the cultivators of the usefulness of the method.⁹⁷ Similarly, the essay recommended using the Shabul Nangar for making channels at set distances from each other, which would enable collection and storage of rain water for irrigation.98

Interestingly, there were also descriptions of what can perhaps be regarded as examples of adaptive innovation, which led to new knowledge and practices. For instance, an

⁹⁴ See, for instance, the series of essays titled "*Jamin aani Tichi Mashagat*" (Land and its Preparation), *Shetki aani Shetkari*, June, July, and August 1910.

⁹⁵ "Jamin aani Tichi Mashagat: Karal Jamin" (Land and its Preparation: Karal Soil Type), Shetki aani Shetkari, August 1910.

⁹⁶ *"Jamin Vahun Janyane Honara Tota*" (Adverse Effects of Soil Erosion), *Shetki aani Shetkari*, October 1933. This essay claimed that soil erosion was the primary reason for the infertility of Indian soil.

⁹⁷ C. R. Gokhale, "*Koradvahu Shetit Alpmoli pan Bahuguni Sudharna*" (Low Cost Multi-Dimensional Improvement in Dry Land Agriculture), *Shetki aani Shetkari*, September 1922.

⁹⁸ Ibid.

essay in the January 1923 issue narrated the experience of a farmer from Chitli village who was able to convert a piece of non-fertile land into a sugarcane-growing field. The description of the process by the farmer was as follows:

Initially I hired some labour to dig out soil waist-deep from the land (non-fertile). Then I filled that portion with the black soil dug out from another piece of land belonging to me. In addition, I also applied a lot of urine and dung manure.⁹⁹

On being asked about the possibility that the land from where the black soil was taken would lose its fertility, the farmer further explained:

The depth of the black soil in that farm is much greater and the area of that plot is much bigger. I have taken soil from the top and after that done deep and shallow ploughing, and also applied manure to that land.¹⁰⁰

He went on to claim that another farmer from the same village had improved his land in a similar fashion. On being asked about the inspiration for this innovation, he attributed the source of the idea to Bhausahab Pawar, a 7th standard boy studying in the village school, who happened to be the son of the other farmer.¹⁰¹

Articles disseminating knowledge about the scientific application of manure and fertilizers for the improvement of soil and better production are frequently found in issues of *Shetki aani Shetkari*. The Marathi saying "*Zar khatacha satha tar paisala kai tota*"¹⁰² (If you have a stock of manure there will be no dearth of money) captured the importance attached to manuring in the village economy.

In fact, an essay in the very first issue of the journal, in June 1910, discussed the different types of manure and fertilizers required for the improvement of sugarcane cultivation in canal-irrigated land and well-irrigated land separately. It noted the growing price of dung manure due to an increase in the area under sugarcane cultivation, and recommended that it be substituted or supplemented with castor cake (*errandichi paind*), safflower cake (*kardaichi paind*), and ammonium sulphate.¹⁰³ It advised: "Ammonium sulphate should always be kept covered as the nutrient content will otherwise evaporate."¹⁰⁴ The essay declared nitrogen to be the most important element for the growth of sugarcane, and also provided a comparison of the nitrogen content present in different types of fertilizers. It pointed out, for example, that "one cart of ammonium sulphate contains nitrogen equivalent to 3 carts of

⁹⁹ K. B. Baber, "*Jaminicha Supikpana Kasaa Vadhawavaa?*" (How to Improve the Fertility of the Soil), *Shetki aani Shetkari*, January 1923.

¹⁰⁰ *Ibid*.

¹⁰¹ Ibid.

¹⁰² "Shenkhat Sathaun Thevanyachi Padhat" (The Method of Collecting Dung Manure), Shetki aani Shetkari, July 1910.

¹⁰³ Pandurang Chimanagi Patil (L. Ag.), "*Usaachi Khate*" (Fertilizer for Sugarcane), *Shetki aani Shetkari*, June 1910.

¹⁰⁴ *Ibid*.

kardaichi paind (safflower cake), 6 carts of *errandichi paind* (castor cake) and 30 carts of dung manure."¹⁰⁵

There are several such articles that described the composition and potency of different manures and fertilizers, and methods to procure and preserve dung-based manure. The preparation and use of bone-based manure¹⁰⁶ as well as green manure are discussed.¹⁰⁷ Such articles appeared in the periodical right from its inception and continued throughout its life.

Mention must be made here of an interesting discussion in one article on the use of village waste-based manure.¹⁰⁸ The article discussed in detail the preparation of such manure, and argued that it was more suited for use on Indian soil as compared to "foreign fertilizers." It strongly urged educated Indians to manufacture this type of manure domestically, and supply it to the "illiterate" farmers. Such manufacturing work, it stated, requires "some knowledge of agricultural chemistry and agricultural bacteriology, and therefore can be taken up only by the literates."¹⁰⁹ It concluded with an expression of hope for the educated class of Indians:

Some Britishers say that Indians have heads but no hands, but the situation today is changing. Our literate youth are ready for physical work. We hope to prove the above sentence wrong by depicting the use of both hands and head.¹¹⁰

Articles that discussed farm yard manure were by far the most frequent. Some of them described in detail the potential yield increase that could be gained from the application of different manures.¹¹¹ Noticeable by their absence in the journal are articles that draw a distinction between the uses of traditional manure and chemical fertilizers. In fact, there appears to have been a ready acceptance of any input, as long as it was affordable and could improve profitability.

Another important subject that was frequently discussed in the pages of the journal was tools and implements. The advantage of modern implements lies in their inherent labour-saving capacity, which was the main reason for agricultural development in Europe and America. In these countries, farmers had to shift to

¹⁰⁵ *Ibid*.

¹⁰⁶ See, for instance, "*Hadake va Hadkanchi Khatey*" (Bone and Bone Meal Fertilizer), *Shetki aani Shetkari*, September 1911.

¹⁰⁷ See, for instance, "*Tagachi Bivad va Tagachi Bujavani Agar Gadni*" ([Green] Manure from Leaves of Sunn Hemp and from its Burial in the Soil), *Shetki aani Shetkari*, June 1911.

¹⁰⁸ Sheshrao Ganesh Pande, "*Ek Atyant Avashyak Dhandha*" (A Very Important Business), *Shetki aani Shetkari*, November 1929.

¹⁰⁹ Ibid.

¹¹⁰ *Ibid*.

¹¹¹ "Shenkhat Sathaun Thevanyachi Padhat" (Methods of Collecting Dung Manure), Shetki aani Shetkari, July 1910. This essay provided a table comparing the average yield of wheat over 20 years, among fields that used shora (nitrate of potash), shenkhat (dung manure), sheanichi raakh (ash from dung), and fields which did not use any manure or fertilizer at all. It concluded that the productivity of land increases the most by applying shora, followed by shenkhat.

mechanised agriculture due to the high wage rates for labour.¹¹² India, it was argued, had not yet experienced such high wage rates but was heading in that direction – driven by better work opportunities in the cities that was inducing people to migrate out of agriculture.¹¹³ In view of this, the journal strongly urged the rejection of traditional beliefs, such as "iron ploughs will poison the land." It called upon farmers to "adopt new and improved implements that in minimum time and with lower costs can give long-term benefits." It claimed, "If cultivators use the plough, bad times will wither away."¹¹⁴ An editorial in the August 1913 issue of the journal strongly recommended not just the immediate use of "improved implements for ploughing, shallow ploughing, sowing, and harvesting," but also the "acute need for factories manufacturing such implements important? The editorial noted:

Foreign implements may not be suitable for Indian conditions. Also, we do not have the capacity to repair such implements in India. Thus, we need domestic factories to manufacture improved agricultural implements. Unfortunately, in our region there are not even three such factories. Among these few factories, the factory by Kirloskar brothers at Kirloskarwadi is worth its name. Other factories just copy the ploughs, but it is only the factory of Kirloskar brothers which is devoted to agricultural technology.¹¹⁶

The editorial detailed at length how the Kirloskar brothers first tried to understand the needs of the farmers, and then proceeded to manufacture the iron plough and the fodder machine. They further improved the quality of their products and gradually became experts in manufacturing various kinds of ploughs and other implements like the cart wheel. The editorial concluded by reasserting the need for more such factories to ensure that "the head of our agriculture will rise [in pride]."¹¹⁷

Debate on Ploughs

The most commonly discussed implement was of course the plough, and we witness the persistent advocacy of the iron plough. An essay in the June 1912 issue of the periodical described the issues raised by Advocate Kuppuswamy Mudaliar in the debate on the Budget in the Legislative Council of the Bombay Government. He said:

The Government should provide Rs 5,000 to the Department of Agriculture in order to purchase improved ploughs. The Department should then divide them (the ploughs) across ten *talukas* in sets of ten, and allow for their usage by the farmers at minimum rent. This way the people will use such ploughs and understand their advantage.¹¹⁸

¹¹² See G. K. Kelkar, "Sudharreli Shetkichi Sadhane" (Improved Agricultural Implements), Shetki aani Shetkari, June 1912.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ "Sudharlelya Shetki Avtanche Deshi Karkhane," editorial, Shetki aani Shetkari, August 1913.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ "Sudharlelya Shetki Sadhanancha Prasar" (Dissemination of Improved Agricultural Implements), Shetki aani Shetkari, June 1912.

The essay claimed that this proposal had already been approved by the Legislative Council. Among the many discussions on the relative merits of different types of iron ploughs, mention must be made of the long commentary by Vitthal Sadanand Vyavharkar, a retired engineer of Jejuri village and a member of the Deccan Agricultural Association.¹¹⁹ In his commentary, he compared the Ransom CT2, the Ransom SAE Gallows, the Kirloskar 100, and the Rudsack UW5 ploughs,¹²⁰ based on the experience of landowners from Chinchwad, Kondanpur, and Satara. He noted the many drawbacks in the Ransom ploughs and recommended the Rudsack plough instead.¹²¹ Interestingly, we also see a reply to his commentary by the editor of the periodical, claiming that such issues were based on specific experiences and could not be generalised. The editor then laid out some basic principles for selecting a plough, while also providing detailed comparisons of all the ploughs. He claimed that the problems had arisen due to lack of maintenance of the implement by its users; he therefore prescribed better care.¹²² Such essays continued to be published in the journal over the next few decades. Some other implements that frequently found mention in the writings of Shetki aani Shetkari were the mot made of iron, iron cane crushers, new types of bullock carts, bore wells, seed drills, and oil pumps. The essays generally described the implements, proper methods of using and maintaining them, and the long-term advantages of using them despite the increase in cost.

Crops

A similar range of discussion and debate took place on the subject of crops. These writings often discussed a particular crop, and its new and improved methods of cultivation.¹²³ Some of the general instructions and operations that these essays described were: the appropriate soil required for a particular crop, the method of preparing the land for a particular crop, the quantity of rainfall required, the appropriate type and quantity of fertilizer, the correct method and time of sowing, the prescribed quantity and quality of seeds, inter-cultural operations, and the proper ways and time for picking. Often, they also described the expected production and income of a particular crop.

For instance, the December 1913 issue of the periodical described in great detail the process of tomato cultivation as it was practised in Quetta.¹²⁴ It described the

¹²⁴ The December 1913 issue of *Shetki aani Shetkari* published an essay titled "*Belvangyachi Lagawad*" (Tomato Cultivation). This was a Marathi translation of an article from the July 1913 issue of the *Agricultural Journal of India*.

¹¹⁹ "Jezuri Yethil Sheti Sabha Va Pratyakshik" (Agricultural Assembly and Demonstration at Jejuri), Shetki aani Shetkari, July 1914.

¹²⁰ Different types/models of contemporary ploughs.

¹²¹ Vithal S. Vyavaharkar, "Nangarat" (Deep Ploughing), Shetki aani Shetkari, June 1914.

¹²² Ibid.

¹²³ See, for instance, the long description of the cultivation process for Cambodian cotton in the essay titled "*Cambodia Kapsachi Dakshin Maharashtra Ta Lagvad*" (Cultivation of Cambodian Cotton in Southern Maharashtra), in the September 1912 issue of the journal. This essay, based on an experiment in a Government agricultural farm, described the detailed operations involved in the cultivation of a new variety of cotton, which it claimed was suitable for southern Maharashtra and could replace American cotton.

method of growing a tomato sapling, replanting it in the field, the method of irrigation, scientific ways of inter-cultural operations, cutting and trailing, and, finally, harvesting. It stated that the process of cultivation in Quetta had led to a significant increase in incomes.¹²⁵ Interestingly, we find a reference to this particular essay in the biography of Sakharam Pant Patil, published in 1946, who practised this method of tomato cultivation after reading about it in the periodical. It said:

In the December 1913 issue of *Shetki aani Shetkari*, there is a detailed description of how to cultivate tomato. After reading this, Sakharam Patil used this method to cultivate tomato in an area of ten *gunthas*. He also kept a distance of three feet between the plants, as prescribed in the essay. Since the trail of iron wire was expensive for him, he used a coir rope as trail to support the plants. He applied adequate water and fertilizers. His total expenditure was Rs 1,800, and other farmers laughed at him for this expense. However, the production was very good and he even got a good price. Thus the net income was Rs 3,700. Sakharam Patil continued the cultivation of tomato as well as chilli for the next few years using the prescribed method.¹²⁶

This was a typical case of adoption of a new crop and a more systematic method of cultivation. We find similar stories of adoption of crops like sugarcane, potato, etc., in the letters to the editor of *Shetki aani Shetkari*.¹²⁷ We also find essays which describe government initiatives for the expansion of cultivation of a particular crop.¹²⁸

Seeds

On the specific question of selection of seeds, we find discussions in the journal that described the importance of the quality of seeds and the ways to ensure that only better quality seeds were used for sowing. An essay appearing in the June 1919 issue, titled "*Perni Purvi Biyanchi Pariksha Karun Pahane*" (Seed Testing Before Sowing), began with a critique of the tendency among cultivators to play down the contribution of good quality seeds in the cultivation process. It lamented that cultivators considered only operations like land preparation, irrigation, and application of fertilizers as sufficient for good production. Countering this, it argued:

The kind of crop that big, new, and proper seeds can beget, can never be brought about by old, hollow, and adulterated seeds, no matter how much of water and fertilizer you apply. Such low quality seeds are bought by the innocent farmers from the market despite their lowly appearance, due to their being cheaper in cost. Most of the times such seeds prove to be useless. Farmers should buy better seeds even if it costs a bit more.¹²⁹

 $^{^{125}}$ According to the essay, tomato cultivated in this fashion on a plot of 16 *gunthas* led to an income of Rs 842, despite the fact that half the production was ruined due to the cold weather in September.

¹²⁶ Bal Gangadhar Kher, "*Adarsh Krushival – Maatiche Sone*" (The Ideal Cultivator - Transforming Soil into Gold, Biography of Sakharam Pant Patil), Parizat Publication, Mumbai, 1946, p. 98.

¹²⁷ Letter by Gangadhar Govind Thakur, *Shetki aani Shetkari*, October 1914.

¹²⁸ For instance, "*Mumbai Ilakyati Shetichi Pragati*" (Agricultural Development around Bombay Region), published in the June 1910 issue, talked about government initiatives to develop various crops like cotton, sugarcane, and potato.

¹²⁹ Kisan M. Sonawane, "*Perni Purvi Biyanchi Pariksha Karun Pahane*" (Seed Testing Before Sowing), *Shetki aani Shetkari*, June 1919.

The essay went on to give a detailed comparison between the cheaper and the costlier seeds in language easily understood by cultivators, in order to make the point that costlier seeds were beneficial for the farmer. Finally, the essay stated that it was best for the cultivators to save seeds from their own production. However, in case of drought, poor farmers were not able to save anything and were forced to go to the market. Seeds bought from the market, the essay recommended, should be sent to the Seed Testing Department of the Agricultural College, Poona, even before cleaning them. The College would respond within ten days, with comments on the germination power of the seeds.¹³⁰ There were other articles that described the process of testing for better quality seeds by the cultivators themselves. For instance, in "*Biyanchi Nivad*" (Seed Selection), written by an agricultural graduate in the January 1926 issue, easy methods to identify hollow seeds of *bajra* (pearl millet) were prescribed: the bigger seeds are filtered first, and then put in water to test if they are hollow.¹³¹ The author also prescribed similar processes for the seeds of crops like cotton and groundnut.¹³²

We come across an interesting essay in the early 1930s, which claimed that "the Department of Agriculture has taken sincere efforts in the last five to seven years in publicising pure seeds and has received considerable success in its effort."¹³³ This, the essay claimed, was in contrast to an earlier tendency to ignore the value of good quality seeds. It went on to discuss the efforts of the Government agricultural farm in Karjat to develop pure quality seeds of a particular variety of rice. It also claimed that such seeds were being distributed at a 50 per cent subsidised price to a group of registered farmers, who were expected to use these seeds for their own production as well as for distribution to other farmers.¹³⁴

Credit

Another subject on which the periodical published frequent articles was the mechanism of credit cooperatives for inputs and marketing of agricultural products.¹³⁵ The general information contained in these writings pertained to the meaning of cooperatives, the ways to establish and run them, and the advantages of these institutions. On the subject of credit, there seems to have been a clear understanding that easier and timely availability of finance was essential for the

¹³⁰ *Ibid.*

 ¹³¹ C. R. Gokhale (Agricultural Inspector, Solapur), "Biyanchi Nivad," Shetki aani Shetkari, January 1927.
 ¹³² Ibid.

 ¹³³ N. V. Hanumant, "Kolamba No. 42 Chya Prasarachi san 1931 Saala Karita Yojana" (A Plan for the Dissemination of the Kolamba No. 42 Variety of Rice in the Year 1931), Shetki aani Shetkari, April 1931.
 ¹³⁴ *Ihid.*

¹³⁵ K. S. Gore, in an article titled "*Krushivishayak Sahakarya*" (Agriculture Related Cooperatives) (1913), discussed the necessity for cooperative societies to deal with the various problems of the cultivators, especially in view of the fact that most of them were illiterate. He envisaged the role of cooperative societies for inputs and operations that were viable, like fertilizers, implements, land, commodity markets, and so on.

well-being of the cultivators, and that moneylenders should not be the source of such finance. We do not see any radical argument against the institution of moneylending. There is awareness, however, that no measure of benevolence could be expected from moneylenders.

The business of the moneylender is one that is based on profit. He charges the interest rate in such a fashion that it does not harm his business. There is nothing wrong in such thinking. 136

As credit societies were not primarily meant to be profit-making businesses, it was argued that they could be the solution to the problem of moneylending.

The way of functioning of credit societies is different. These societies do not want to do business or earn money. They just want to avoid getting bankrupt. Therefore they charge the minimum interest rate possible. This is their main objective.¹³⁷

The essay stated that in addition to giving loans to farmers, credit societies also helped them in paying back their debts. It concluded that herein lay the difference between credit societies and the moneylender, who invariably charged usurious interest rates. Cooperative credit societies also facilitated small savings in places where institutions like banks were not available.¹³⁸ Similar discussions are to be found on the subject of cooperatives for ploughs and other implements,¹³⁹ as well as cooperatives for selling agricultural products.¹⁴⁰

Agricultural Legislation

Finally, the journal frequently published descriptions of official reports and legislations related to agriculture.¹⁴¹ These descriptive pieces generally did not engage in any form of critical analysis, and were more in the nature of informative commentaries. There were also summaries of proceedings of the Legislative Council

¹³⁶ Lakshman Vitthal Kaikini, "*Shetkarancha Sahkari Patpedhya*" (Farmers' Cooperative Banks), *Shetki aani Shetkari*, August 1910.

¹³⁷ Ibid.

¹³⁸ K. S. Gore, "*Paisa Rakshan Karnyachya Kitek Yuktya*" (Different Ideas for Saving Money), *Shetki aani Shetkari*, June 1913.

¹³⁹ See, for instance, the editorial piece in the combined issue of January–February 1926, titled "*Autanchya Societya*" (Cooperative Societies for Different Types of Ploughs).

¹⁴⁰ See, for instance, the October 1922 issue, for the translation of a Note by Harold Mann, Director of Department of Agriculture, and Rothfield, Registrar of the Cooperative Department, on marketing of agricultural products through the principle of cooperatives, titled "Sahkari Tatvavar Shetitil Utpannachi Vikri" (The Sale of Agricultural Produce Through the Principles of the Cooperative). According to a commentary by N. S. Joshi, titled "Mumbai Ilakhyati Agricultural Non-Credit Sociitya wa tyanche Kaam" (Agricultural Non Credit Society in Bombay Region and its Work), published in the September 1930 issue of the journal, there were 59 agricultural non-credit societies that were involved in marketing different agricultural products like cotton, jaggery, chilli, and so on.

¹⁴¹ See, for instance, the summary of the *Report of the Royal Commission on Indian Agriculture*, which appeared in the August 1928 issue.

on issues related to agriculture.¹⁴² Such commentaries appeared with increasing frequency in the 1930s, and reflected a growing tendency to question the activities of the Department of Agriculture and the work of the experimental farms.¹⁴³ One member questioned the usefulness of agricultural chemists and engineers, while another challenged the claims made by agricultural officials on agricultural development by asking for figures on the increase in gross agricultural production.¹⁴⁴ Yet another commentary posed the question:

If the Agriculture Department is putting in so much effort for the improvement of wheat and other crops, then why is the production not increasing in scale and why is Australian wheat being sold so cheaply here?¹⁴⁵

Apart from such discussions, there was also the occasional publication of handouts or *hastapatrak* from the Department of Agriculture.¹⁴⁶ These handouts described in great detail the operations in the cultivation of a particular crop,¹⁴⁷ or details about some new methods, or tools and implements.¹⁴⁸ They also provided detailed information on Bills related to agriculture.¹⁴⁹ The handouts often publicised the results obtained from the experimental farms. For instance, the "*Shetki Khate Mumbai Hastapatrak: Number 6*" (Handout Number 6 of the Provincial Department of Agriculture), published in the February 1920 issue of the periodical, discussed the possibilities and benefits of cultivating *jowar* (sorghum) in the Konkan region.¹⁵⁰ It stated:

¹⁴² See, for instance, the September 1932 issue, which carried an article titled "*Mumbai Kayade Councilatil Prashnottarey*" (Questions and Answers in the Bombay Legislative Council), by R. N. Rajadynya. This article presented the response of a member of the Legislative Council, W. F. Hudson, on questions raised about the Land Improvement Loans Act, 1883. Similar discussions on the work of the Council were witnessed quite regularly in the 1930s.

¹⁴³ See, for instance, "Mumbai Kayade Mandalache Kaamkkaaf" (Functioning of the Bombay Legislative Body), published in April 1933, for a critical discussion on the work of the Department of Agriculture.
¹⁴⁴ Thid.

¹⁴⁵ *Ibid.* In the same discussion, we find a commentary on the work of the Department with regard to agricultural education.

¹⁴⁶ These handouts were published by the Department of Agriculture in English and Marathi. Anybody could acquire them for free by applying to the Director of Agriculture, Poona.

¹⁴⁷ See, for instance, the handout on the methods of cultivating sugarcane, August 1913, and *jowar*, February 1920. ¹⁴⁸ See, for instance, the March 1914 issue, for a discussion of the various tools and implements that had been advised by the Department of Agriculture. It carries a table specifying the type of implements, their price, where to obtain them, and their advantages. For example: 1) Name: *Nangar Egyptian Dharti Var* (Egyptian style plough); Price: Rs 5 (Hyderabad Sindh Government Farrm); Contact: Deputy Director of Agriculture, Sindh Mirpur Khas; Advantage: It works better than the Sindh Plough. 2) Name: *Petari* (Scraper); Price: Rs 7 (Government Farm Mirpur Khas); Contact: Deputy Director of Agriculture, Sindh Mirpur Khas; Advantage: It is better than the traditional *petari*. It helps in land-levelling and speedier construction of bunds.

¹⁴⁹ "Zameenichi Lahan Tukdyan Babat Yetya Council Pudhe Yanarya Bilasambandhi Mahiti wa Bilacha Saransh" (Summary Information on the Forthcoming Land Fragmentation Bill in the Council), Shetki aani Shetkari, August 1928, discussed the forthcoming Bill related to small landholdings and land fragmentation.

¹⁵⁰ *"Shetki Khate Mumbai Hastapatrak: Number 6"* (Handout Number 6 of the Provincial Department of Agriculture), *Shetki aani Shetkari*, February 1920.

It has been proved by five years of experiments in Konkan region that in *varkas* soil, there is no problem in cultivating *kharif* and *jowar*.¹⁵¹ These experiments have been done in Ratnagiri and Kulaba Government agricultural farms, as well as in the field of a farmer in Umargaon in Thane district. Due to this [the experiments], there should not be any doubt of its success. Based on these experiences, it can be stated that the average per acre production of grain is 400 pounds and that of straw [fodder] is another 400 pounds.¹⁵²

It went on to claim that due to the scarcity of fodder in the Konkan region, the cultivation of *jowar* would prove to be even more beneficial. It also asserted that the silage based on *jowar* straw was better than the grass silage.¹⁵³

New techniques and implements were also promoted through competitions sponsored by the rulers of the Princely States or by the agricultural colleges. The conduct and management of these competitions were often under the supervision of the Poona Agricultural College.¹⁵⁴ For instance, the July 1913 issue of the journal carried an advertisement for a competition announced by J. W. Bilvarkar, *Sardar* of Alibag, Kulaba district, for the manufacture of a new *pabhar* (seed drill)¹⁵⁵ with prize money of Rs 300. The advertisement laid down in detail the expected functions of the drill – that it should be "automatic," "maintain the distance between seeds," "have the capability to sow different kinds of seeds," "be precise," and "cover maximum ground in each round."¹⁵⁶ It also mentioned other important features such as "simplicity, longevity, automatic stop system, portability, ability to increase and decrease the distance between rows, easy removal of residual seeds," and so on.¹⁵⁷ It concluded by stating that "only those seed drills would be considered which are complete in all aspects. They should be ready for use without any alteration."¹⁵⁸

A similar advertisement was published in the August 1913 issue of *Shetki aani Shetkari*, this time for a harvester. The amount of prize money was the same as before. The competition was sponsored by Balasaheb, the *pant pratinidhi* (chief) of the Princely State of Aundh.¹⁵⁹ The periodical mentioned that it had been inspired by the one in Alibag.¹⁶⁰ It was supervised by the Poona Agricultural College, and the requirements were very similar to that for the seed drill. The August 1913 issue

¹⁵¹ *Varkas* or *warkas* is a type of soil found in the Konkan region, which has poor productivity and is used to cultivate coarse grains.

¹⁵² *Ibid.*

¹⁵³ Ibid.

¹⁵⁴ The January 1913 issue mentioned the results of a competition held by the Agricultural College, Poona. However, we were not able to access the advertisement for the competition.

¹⁵⁵ "Mahatvache Bakshis" (A Valuable Reward), Shetki aani Shetkari, July 1913.

¹⁵⁶ *Ibid*.

¹⁵⁷ Ibid.

¹⁵⁸ Ibid.

¹⁵⁹ Balasaheb or Bhawanrao Shriniwasrao, the *pant pratinidhi*, had a reputation for being forward-looking. He is credited with having provided support, including land and capital, to the Kirloskar brothers to establish their venture and to set up their plough factory near Kundal Road Station in Satara district.

¹⁶⁰ "Shetkaryanche Kaivari" (Votary of Farmers), Shetki aani Shetkari, August 1913.

carried yet another advertisement, this time for an essay competition for students on the benefits of cooperatives, conducted by the Cooperative Society in central Poona.¹⁶¹

CONCLUSION

This paper reviews the part played by the Marathi journal *Shetki aani Shetkari*, published by the Deccan Agricultural Association, Poona, in the debate on agricultural modernisation in colonial Maharashtra. The publishers of the periodical maintained close links with the colonial government machinery, especially the provincial Department of Agriculture and the Poona Agricultural College, and the editorial content of the journal thus had the approval of the establishment. In that sense, the views of the journal were officially acceptable, even if they did not become official policy.

There was a consensus in Government and in the pages of the journal on the meaning of agricultural development, understood as the adoption of new scientific methods and the application of improved techniques and technology. The periodical was consistent in its effort to disseminate new knowledge as well as encourage the application of this knowledge. It also documented the adoption of improved inputs and scientific methods, and of small-scale adaptive innovations by landowners. It is important to appreciate that, in the later years, many of the contributors to *Shetki aani Shetkari* were trained agricultural scientists (with Bachelors' degrees in Agriculture), generally from the College of Agriculture at Poona. Although the articles did refer to experiments relating to modern agricultural methods occurring in farms in different parts of the world, there were no notable references to leading science journals of the time. Nevertheless, it can be said that the journal reflected a relatively advanced level of scientific knowledge.

The Deccan Agricultural Association was persistent in educating cultivators. While its discourse was about education for all persons involved in the practice of agriculture, actual practice encouraged only those belonging to large landowning families. By the last decade of the nineteenth century, colonial officials had identified the fragmentation of landholdings as a major impediment to agricultural progress. The enthusiastic advocacy of measures to prevent further land fragmentation by colonial officials in the early twentieth century strengthened the views of the Association on land consolidation. The issue of land consolidation gained prominence in the Association in the 1920s.

The Association and the journal were conspicuously silent on the need for institutional change to bring about agricultural modernisation. Rarely do we find mention of the need to change the taxation system or of the problem of usury as detrimental to agricultural development, despite the fact that the period in which these writings appeared coincided with a growing national movement. The idea of agricultural

¹⁶¹ See the advertisement for the essay writing competition, titled "*Bakshis Rs 5*" (A Reward of Rs.5), *Shetki aani Shetkari*, August 1913.

modernisation was, nevertheless, influenced by nationalist sentiments, an influence that can be seen in our source material.

There was no discussion of caste in the journal, of its entrenched hold over the rural economy, and its stultifying effect on production and productivity. The absence of any discussion of caste is particularly striking, since this was a period in which the Satyashodhak Samaj established by Jyotirao Phule was active. The social reform movement argued that the dissolution of the caste system and caste oppression was a precondition for agricultural modernisation.

There was no reference in the journal to the contribution of women in the agricultural production system, despite the importance of women's labour in the production process, and despite the fact that the Deccan Agricultural Association worked closely with big cultivators, and would have known the importance of women's involvement in cultivation practices (indeed, for the first ten years the cover of the periodical carried the sketch of a farm couple, man and woman).

The writings in *Shetki aani Shetkari* provide a window to the colonial understanding of agricultural modernisation, and the effort by the State to propagate this understanding among the landowning classes. It is not surprising, therefore, that the views held by the journal did not deal with institutional or structural change.

The Deccan Agricultural Association witnessed a change in direction in the 1930s, shifting its original goal of agricultural modernisation to a more amorphous concept of village improvement or rural development. While it is true that this change did not have any remarkable effect on the focus of its journal *Shetki aani Shetkari*, this change in the focus of the Association and its relationship with broader contemporary political and economic development was a noteworthy event, and an interesting subject for future enquiry.

Acknowledgements: The authors would like to thank Professor T. Jayaraman for his consistent assistance and advice during different stages of the research for this paper. The authors are also indebted to the editors of this journal, Parvathi Menon and Pushpita Dhar for their insightful comments and inputs on the paper.

References

Arnold, D. (2000), *Science, Technology, and Medicine in Colonial India*, vol. 3, part 5, Cambridge University Press, Cambridge.

Baber, Z. (1996), *The Science of Empire: Scientific Knowledge, Civilisation, and Colonial Rule in India*, State University of New York Press, Albany.

Howard, A., and Howard, G. L. C. (1929), *The Development of Indian Agriculture*, vol. 3, Oxford University Press, London.

Imperial Council of Agricultural Research (ICAR) (1935–6), *Report on Agricultural and Animal Husbandry in India*, New Delhi.

Kaiwar, V. (1992), "The Colonial State, Capital, and the Peasantry in Bombay Presidency," *Modern Asian Studies*, vol. 28, no. 4, October, pp. 793–832.

Keating, G. F. (1912), Rural Economy in the Bombay Deccan, Longmans Green and Co., London.

Keating, G. F. (1921), Agricultural Progress in Western India, Longmans Green and Co., London.

Knight, J. B. (1906), *Agricultural Lessons*, Bombay Presidency Government School Department, Bombay.

Kumar, D. (1997), Science and the Raj: 1857-1905, Oxford University Press, New Delhi.

Ludden, D. (1994), "Introduction: Agriculture Production in Indian History," in David Ludden (ed.), *Agriculture Production in Indian History*, Oxford University Press, New Delhi.

Randhawa, M. S. (1983), *A History of Agriculture in India, vol. 3: 1757–1947*, Indian Council of Agricultural Research, New Delhi.

Royal Commission on Indian Agriculture (1928), *Report of the Royal Commission on Indian Agriculture*, London.

Schrottky, E. C. (1876), "The Principles of Rational Agriculture Applied to India and Its Staple Products," Times of India Office, Bombay.

Voelcker, J. A. (1893), Report on the Improvement of Indian Agriculture, Calcutta.