

Heroes of Production

Agricultural Science, the Indonesian Peasants' Movement, and Knowledge Decolonization, 1950–1965

▼ ONLINE FIRST ARTICLE

▼ **ABSTRACT** This article examines people-centered science in Indonesia between 1950 and 1965, and its role in the agrarian movement. It explores the decolonial context of knowledge production by examining the contribution of leftist figures, who were members of the Indonesian Peasants' Front (Barisan Tani Indonesia—BTI), in creating people-centered science. Through an analysis of their personal profiles, innovations, and relations to power, the paper shows that BTI's strategy of epistemological decolonization was very much a political business, which included negotiations with political leaders, the channeling of funds, and the mobilization of public support. It can be said that contrary to the assumption of the “purity” of people power or indigenous knowledge in decolonial Indonesia, the people-centered science of Indonesian leftists was constructed by connecting, borrowing, and adapting different roots, including those that were left by colonial institutions.

▼ **KEYWORDS** Knowledge decolonization, Indonesia, peasants' movement, rice production, leftist movement

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BREPOLS

In 1959, Martosuwondo, a farmer in Jogjakarta, central Java, claimed he had successfully managed to produce 118.19 quintals (approximately 1,181 tons) of rice per hectare on his 800 square meters of land. He said that the key to his success was the “five principles” that he had read about in *Suara Tani*, a periodical from the Indonesian Peasants’ Front (Barisan Tani Indonesia—BTI). These five principles, as used by Chinese farmers, were dig deep, plant densely, increase fertilizer, improve seedlings, and use irrigation.¹ Martosuwondo was a member of both BTI and the Indonesian Communist Party (Partai Komunis Indonesia—PKI). He did not have a formal education in agriculture; rather, he undertook agricultural experiments in his field and published his results in BTI periodicals, at community meetings, and at seminars. However, Martosuwondo’s claim was highly criticized and even laughed at. Harmosuwignjo, head of the People’s Agriculture Office in central Java, dismissed these claims as nonsense and said that the average yield of rice in central Java could only reach 24 quintals.² Even in Japan, which might be considered a self-sufficient country, they could only yield approximately 40 quintals, according to Harmosuwignjo. A similar response was also expressed by the Major-General of the National Army of Indonesia, Gatot Subroto, who stated that Martosuwondo’s experiment was unconvincing. At a glance, this debate seems to illustrate the tension between people-centered and institution-based science. While farmers such as Martosuwondo created farming techniques based on their daily practices, Harmosuwignjo and Subroto represented state institutions that had authority over agricultural policies.

However, this article offers a closer examination of the so-called people-centered science, such as Martosuwondo’s, that was dominant in Indonesia’s decolonial period. Moving beyond the illustrated tension between government institutions and grassroots organizations, this article aims to offer new insights into how this people-centered science was produced, through an examination of the leftist farmers’ movement, BTI. A close reading of diverse sources shows that the people-centered science was not built exclusively by the people themselves, but through myriad contacts with government officials and funding sources; past colonial institutions; and global knowledge networks such as the Chinese farmers who inspired Martosuwondo. Therefore, it can be said that contrary to the assumption of the “purity” of people power or indigenous knowledge in decolonial Indonesia, the people-centered science of Indonesian leftists was constructed by connecting, borrowing, and adapting different roots, including those left by colonial institutions. This knowledge network resonated with agricultural science in China during this period, where it mirrored the drive for agricultural modernization and the application of new technologies that were also introduced by the Green Revolution in the United States. However, the dominant position in China remained that science could

1 *Suara Tani*, “Dengan Panca Prinsip BTI.”

2 BP, “Heboh Tentang Sri Daradasih.”

not be divorced from politics, and modernization could not be separated from revolution.³

Part of this constructed image of the “purity” of decolonial knowledge was influenced by the spirit of nationalism that Indonesian leaders ignited after the proclamation of independence on August 17, 1945. For example, President Soekarno promoted the principle of *berdikari* (“stand on our own feet”), which focused on self-sufficiency, and applied it to agricultural policy, especially to tackle food shortages caused by the Japanese occupation (1942–1945) and the Indonesian War of Independence (1945–1949). *Berdikari* was applied in Indonesia’s first development schemes, the 1947 Kasimo Plan and the 1950 Special Prosperity Plan (*Rentjana Kessedjahteraan Istimiwa*—RKI), which emphasized local agricultural production by mobilizing the masses.⁴ However, being an independent country did not mean that decolonization was completed with the transfer of formal power, as the fundamental transformation of colonial societies remained challenging in pre-independence Indonesia.⁵ During the colonial period, schools, research centers, and other knowledge institutions were developed to meet the needs of an empire.⁶ Once independence was achieved, the post-colonial authorities faced the question of how to shift the center of knowledge to Indonesians, which required fundamental changes in policy, infrastructure, and research agendas. Soekarno’s *berdikari* principle illustrated this shift. In the context of decolonizing science and knowledge, *berdikari* means that science should be geared toward achieving people’s self-sufficiency, and not for the agendas of the elites in power. The key to this, according to Soekarno, was to focus on applied and problem-oriented science, instead of textbook-based thinking. However, despite the orientation toward the benefit of the people, science in early independence Indonesia was influenced by different agendas beyond national pride or self-reliance. For example, science was also a vehicle for realizing Indonesia’s leadership of the non-aligned movement.⁷

Indonesia’s early independence period shows a culminating attempt to break down the coloniality of power—the most general form of domination in the world today, once colonialism as an explicit political order was destroyed, as described by Aníbal Quijano.⁸ His prescription against this epistemic repression was to “liberate the production of knowledge, reflection, and communication from the pitfalls of European rationality/modernity.”⁹ Placing Quijano’s arguments in Indonesia’s early independence period complicates the modes

3 See Schmalzer, *Red Revolution, Green Revolution*. Although the leftist global connection in agricultural knowledge is an intriguing topic, it is beyond the scope of this article.

4 Broere, “Auto-Activity,” 160.

5 Frey et al., *Transformation of Southeast Asia*, viii–ix; Bogaerts and Raben, *Beyond Empire and Nation*, 17.

6 See Goss, *The Floracrats*.

7 Neelakantan, *Science, Public Health*, 178–79.

8 Quijano, “Coloniality and Modernity/Rationality,” 170.

9 Ibid., 177.

of “liberating knowledge.” The case of BTI’s people-centered science demonstrates that rather than total annihilation of (post)colonial elite structures, attempts to liberate were actually executed through the utilization of political lobbying, government funding, and global knowledge networks, including those that were introduced by colonial institutions. In other words, BTI’s approach of epistemological decolonization was very much a political business, which needed negotiations at the elite level as much as mass mobilization at the grassroots level. This echoes with previous studies of science and knowledge in Indonesia which illuminate that scholarship and politics may be complementary or mutually reinforcing, in both colonial and postcolonial contexts.¹⁰ Examining the role of Indonesia’s leftists in agricultural knowledge production will add insights to the previous studies of the decolonial shift of agricultural knowledge which mostly focus on formal knowledge institutions, such as research centers, universities, government ministries, or individual scientists and politicians.¹¹ The article also attempts to provide insights into how BTI worked, broadening our understanding of Indonesia’s postcolonial agrarian movement.

As the largest peasant organization in Indonesian history, BTI was established in 1945 and grew in size in 1953 after several peasant and farmer organizations merged into it.¹² By 1964, it claimed to have more than 7 million members.¹³ With the growing numbers, BTI remained committed to the agenda of Indonesian peasants’ struggle “to eliminate feudalism,” and link peasant and middle-class farmers against landlords.¹⁴ After the Basic Share-Tenancy Law was passed in 1959 and the Basic Agrarian Law no. 5 in 1960, BTI became the main advocate for their implementation.¹⁵ These laws replaced the colonial Agrarian Law, established in 1870, which had benefitted Dutch and other foreign plantation companies. Both the new Basic Share-Tenancy Law and Basic Agrarian Law regulated private ownership, maximum and minimum holding limits, and the conversion of tenancy into ownership rights. Despite criticisms of these laws, they did provide a legal basis for eradicating rural inequality through land reform. BTI’s move in support of the laws was viewed by opponents as overly aggressive—for instance, in 1963, when it encouraged peasants to refuse to hand over crops to landlords.¹⁶ These agrarian conflicts were not resolved until September 1965, when the military overthrew Soekarno and annihilated the PKI (and its affiliated organizations), resulting in the deaths of more than 500,000 party members and other leftists, including BTI members.

10 Hadiz and Dhakidae, *Social Science and Power*; Curaming, *Power and Knowledge*, 3.

11 See Nawiyanto, “The Politics of Food.”

12 Anonymous, *Laporan Tentang Perbaikan Konstitusi*, 30.

13 *Suara Tani*, “Kaum Tani Bersama Rakjat Indonesia.”

14 Anonymous, *Laporan Tentang Perbaikan Konstitusi*, 30.

15 See White, “Indonesian Peasants’ Front”; Fauzi, *Petani & Penguasa*.

16 Asmu, “Keterangan Asmu Tentang Aksi Sepihak.”

Since then, Indonesia has been predominantly anti-communist, resulting in the marginalization of leftist perspectives in Indonesian historiography.

To date, most studies of BTI have focused on its organizational and political maneuvers.¹⁷ Only a few have highlighted BTI's contribution to education and research—for example, the impact of the Agriculture and Peasant Movement Institute Egom (Institut Pertanian dan Gerakan Tani Egom)¹⁸ and the bottom-up, participatory research approach used by BTI in the 1960s, long before this method became popular in mainstream development organization circles in the early 1980s.¹⁹ Both of these studies place BTI not only as a political grassroots organization but also as a producer of people-centered knowledge. This article will expand on their arguments by focusing on the more fluid scientific activities beyond a specific knowledge institution, such as practice-based innovations, or non-government research institutions. Through an examination of textual sources produced during this period, especially BTI periodicals such as *Suara Tani* and *Pembangun Desa*, I argue that BTI's people-centered knowledge was developed through various strategies involving both elite networks and mass mobilization strategies. These leftist sources are the ones that were successfully preserved in Arsip Nasional Republik Indonesia (the National Archive of Indonesia), Perpustakaan Nasional (the National Library of Indonesia), the International Institute of Social History (IISG), and Leiden University library after Indonesia's anti-communist purge in 1965–1966. Others, such as research reports by BTI's agricultural scientists, remain missing. This means that we have to rely on the published accounts of the agricultural research. Despite this limitation, this article can serve as an initial discussion of this topic, which hopefully will lead to other studies in this field. To elaborate my arguments, I will firstly describe briefly Indonesia's production of food, particularly rice, and the transformation of Indonesia's research agenda in early independence (1949 to the 1950s). Afterwards, I will discuss BTI's position on education and research, followed by extensive analysis of BTI's agricultural scientists.

Food Production Policy and Research

Food shortages and starvation loom over Indonesia's early independence period. This cannot be separated from the preceding periods of Dutch colonial rule and Japanese occupation, which controlled and prioritized agricultural production for their imperialist economies. During Indonesia's war of independence, food crops substituted the function of money to support the war. For example, farmers in Republican-controlled areas had to donate twenty

¹⁷ Mortimer, *The Indonesian Communist Party*; Alfarius, "Barisan Tani Indonesia (BTI)."

¹⁸ McVey, "Teaching Modernity."

¹⁹ White, "Indonesian Peasants' Front."

percent of their crops to the independence struggle, divided between the army and the civilian government.²⁰ Even after independence, rice production and distribution remained challenging, regulated under a system and institutions that bred corruption and nepotism.²¹ Combined with a failed harvest and the absence of seeds, starvation that already existed during the Japanese occupation continued into the early independence period. In extreme cases, starvation led to mass deaths. For example, 700 villagers died in Banyuwangi, East Java, in 1951 due to severe malnutrition.²² This situation was difficult to overcome. Although eventually the yearly increase in rice production in 1957 was more than the average population increase, rice prices and supplies were overly unstable.²³ Rice intensification and land extension were the strategies employed by the Indonesian government within and outside Java. Other concrete steps included erecting rice mills, mechanization, elimination of regional regulations that might impede rice production and distribution, and control of the price of rice to a maximum 10 percent of the highest retail price.²⁴ When these measures did not provide sufficient rice for the population, the government decided to import rice from Thailand and Burma, targeting a total of 580,000 tons in 1958.²⁵

To execute the national research agenda of food production, the State built various departments and research units that were embedded in three places. The first was the Agriculture Department, which was responsible for farming and stockbreeding and placed in the coordinating body of the Agriculture and Agrarian Compartment that was once part of the colonial structure. One of the leading research centers under this department was the Agricultural Research Center (Balai Besar Penyelidikan Pertanian) in Bogor, which had produced a number of rice varieties.²⁶ Together with the Research Center on Rice and Wheat Crops in Bogor (presumably a subunit under the Agricultural Research Center), this institute succeeded in creating new rice varieties such as *Sigadis*, *Remadja*, and *Djelita* between 1955 and 1960, which were predicted to be planted in 1.5 million hectares in Java and 2 million hectares in all over the archipelago in 1964. In conducting their research, departments under the Agriculture and Agrarian Compartment worked together with universities, which started to conduct their own research in the 1950s, and newly established institutes in the 1950s and 1960s (for example, the Stockbreeding Research Institute in Bogor (1950), the Research Institute

20 Sapto, *Republik Dalam Pusaran Elite*, 225.

21 Ibrahim, "Catutisme Dan Perjuangan," 234–35.

22 Laporan bahaja kelaparan, file 459, Kabinet Perdana Menteri.

23 In 1957, the yearly increase in rice production was 3.3 percent or an average of 200,000 tons, while the population increase was 1.5–2 percent each year. Keterangan Pemerintah Mengenai Persoalan Beras, file 465, Kabinet Perdana Menteri.

24 Ibid.

25 Ibid.

26 Sumintawikarta, *Tjataan Tentang Penelitian Tanaman*, 58–59.

of Food Technology in Jakarta (1952), and the Foot and Mouth Disease Research Institute in Surabaya (1952)).²⁷ Due to the extensive number of research institutions, the Indonesian government established the Agricultural Research Assembly (Madjelis Penelitian Pertanian) as a coordinating body in 1961, whose members were the directors of all research institutes under the Agriculture and Agrarian Compartment.

The second place where agricultural research institutes were embedded was the National Department of Research Affairs. Different from the Agriculture and Agrarian Compartment, this department was not responsible for conducting research, but for national research planning in farming, fishery, and forestry. The third place comprised private institutions, such as companies or plantations, that had their roots in the colonial period and were funded by private contributions or export crop taxes.²⁸ In short, although scientific research was on the national agenda in the 1950s and 1960s, the implementing bodies were stretched over governmental and non-governmental institutions that seem to have overlapped and presumably were not closely coordinated. As we will see in the next section, agricultural innovations did not emerge only from these institutions, but also from grassroots organizations such as BTI.

Indonesia's Peasant Movement and Decolonizing Knowledge

Before looking at BTI's agricultural scientists, I will briefly explain the organization itself, and its standpoint on education and research. BTI was formally established soon after Indonesian independence, in Jogjakarta on October 29, 1945.²⁹ Other peasant organizations from different ideologies, such as the Indonesian Farmer's Union (Rukun Tani Indonesia—RTI) and the Indonesian Peasant Association (Sarekat Tani Indonesia—SAKTI), decided to merge into BTI in the following years.³⁰ Since its establishment, BTI had been a strong opponent of not only colonialism but also feudalism, and encouraged farmers to organize themselves and participate in the revolution. BTI worked closely with the Indonesian Communist Party (PKI), whose mission on agrarian transformation and land reform was closely aligned. Both organizations paid great attention to education and research as their strategy for the movement. BTI stressed the importance of people's power in knowledge production, asserting that research "should not separate agricultural experts with people's organizations, ... gradually returning and increasing the people's productive power that has long been destroyed by colonial power."³¹ This involved providing

27 Sumintawikarta, "Perkembangan Penelitian Pertanian 1945–1965," xiii.

28 See Sumintawikarta, *Tjataan Tentang Penelitian Tanaman*.

29 Alfarius, "Barisan Tani Indonesia (BTI)," 82.

30 Slamet-Velsink, *Views and Strategies*, 20.

31 Barisan Tani Indonesia, "Barisan Tani Indonesia mencapai kemakmuran," Microfiche 5806/1531, Partai Komunis Indonesia: Documents and serials 1952–1965.

seedlings, creating seed farms, and conducting experiments in villages, which were also part of BTI's grassroots mobilization strategy.³² BTI wanted to work closely with the Agriculture Department in reaching those aims, especially for providing funding and training for peasants with practical knowledge so that each BTI branch would have its own seed experts.³³ This shows that since the beginning, BTI's approach to decolonizing agricultural knowledge was to collaborate with the Indonesian government.

Under the spirit of combining science and practice, in June 1958, BTI discussed a plan to organize an agriculture seminar, with the aim "to take the best from agricultural experts and integrate it with practical experiences of peasants so that the knowledge obtained by these experts can be used as a weapon for our peasants to raise food production."³⁴ A month later, a seminar committee was formed, consisting of Djadi Wirjosubroto (chairman of DPP-BTI); Ir. O. Hutagalung (plantation research section in Pasar Minggu/Bagian Penyelidikan Perkebunan Pasarminggu, a research center under the Agriculture Department); Ir. Suharsono (Crop Research Center in Bogor/Balai Penyelidikan Tanaman); Sidik Kertapati (second chairman of DPP-BTI); Suparma (head of plantation Pasar Minggu/Kepala Perkebunan Pasar Minggu); Ir. Lukito (Center for Forestry Research in Bogor/Lembaga Pusat Penyelidikan Kehutanan Bogor); Sumbarhadi (People's Farming Department/Djawatan Pertanian Rakjat), and Hartojo (first vice-chairman DPP-BTI).³⁵ The composition of this committee shows a combination of scientists/government officials and BTI leaders. This seminar failed to materialize, because BTI opted to organize a different seminar on land reform and agrarian law in November 1958 instead. Nevertheless, it is likely that the combination of: inadequate national food production; transformation of national research agenda in decolonial Indonesia; and BTI's strategy in foregrounding people's power played a role in the emergence of certain figures in agricultural science.

Heroes of Production

BTI attempted to circulate and mobilize people-centered knowledge through two dominant channels. The first channel was mentioned at the beginning of this article: the periodical *Suara Tani*, where Martosuwondo first learned about the five principles of farming technique. *Suara Tani* and *Pembangun Desa* were the two main BTI media that were circulated among their members. *Suara Tani*, for example, dedicated particular sections in several editions to cover several farming figures and their agricultural innovation. In the field of fishery, for example, there was the work of Sarbini, a BTI member in

³² Ibid.

³³ Ibid.

³⁴ *Suara Tani*, "Seminar Pertanian," 3.

³⁵ *Suara Tani*, "Panitia Seminar Pertanian."

Tasikmalaya (West Java), who used organic materials such as cucumber and sweet potato leaves or cattle excrement for fish food.³⁶ Another was Krisman Sastroutomo, one of the BTI cadres, who succeeded in creating a fertilizer that could increase crop yields by 50 percent and sustain them up to four times per planting season.³⁷ Krisman was born in 1909 in a peasant family in Sidogede, Magelang, central Java. He was a railway worker who joined the 1926 rebellion against the Dutch government, and after moving from one place to another during the Japanese occupation and war of independence, Krisman managed to obtain a job as a gardener in the Department of Agriculture. Because of his good performance, he was assigned to more complicated tasks, such as mixing chemicals for pesticide, composing fertilizer, and even treating Artona disease in coconut trees. From this experience, he started to develop his own fertilizer. After four years of research, Krisman managed to release his own fertilizer in 1955, and also succeeded in developing tools to exterminate pests, especially rats and squirrels.³⁸

Another way to mobilize people-centered science was through public events, such as festivals, celebration days, or farming competitions. One example was the Labor Day celebration on May 1, 1959, when BTI organized a festival which included performances, sports, and a farming competition in several cities, attended by thousands of peasants, the chairman of the BTI Central Committee (Dewan Pengurus Pusat—DPP), and representatives from the All-Indonesia Workers' Organization Union (Serikat Organisasi Buruh Seluruh Indonesia—SOBSI).³⁹ One of the winners in this farming competition was Nisan, BTI's oldest member in Jakarta, who won a goat-breeding competition. According to Djadi Wirosubroto, BTI chairman at that time, the winners of the competition were considered "figures of production enhancement," illustrating the capabilities of peasants to use their forces for the nation.⁴⁰ The competition illustrates a people-centered strategy to unravel agricultural science embedded in daily farming practices. This was very much in contrast with the State-centered agricultural research which was mostly based in research institutes or universities under the Agriculture Department.

These types of independent experiments continued to grow over the years, increasing the production of rice, cassava, fruits, and other crops.⁴¹ Not only farmers but also government officials were involved in creating innovation in farming, such as in the case of Argoismojo, plenary member of DPP-BTI and also the mayor of Magelang (a city in central Java), who started making compost by using municipal waste.⁴² All in all, BTI considered them "heroes of

36 Sarbini, "Pengalaman Membiakkan Bibit Ikan," 2, 6, 8.

37 *Suara Tani*, "Krisman Kader BTI."

38 *Ibid.*

39 *Suara Tani*, "Pesta Tani Dan 1 Mei."

40 *Suara Tani*, "Ketua Umum DPP BTI Djadi Wirosubroto."

41 *Suara Tani*, "Memperkenalkan Pahlawan-Pahlawan Produksi BTI," 1–2.

42 *Ibid.*

production,” whose “lives are still suffering from the exploitation of landlords, and apart from being active in defending the rights of peasants and resisting the greed of landlords, have succeeded in accelerating production of various food crops.”⁴³ Furthermore, these heroes were perceived as evidence that “as long as we rely on the People, by liberating peasants from feudalistic extraction, by providing democratic freedom and guaranteeing land for the peasants, our national duty to increase agriculture production, especially food production, can be easily executed.”⁴⁴ For BTI, the key to transformation was “liberation of the productive power in the village.”⁴⁵ This people-centric movement resembled President Soekarno’s Guided Democracy system (1959–1965), which was initially a genuine effort to involve a variety of people within the State. Soekarno expressed this through his slogan “Nasakom” (*Nationalis, Agama, Komunis* or nationalists, religious groups, and communists) to represent the three major ideological streams in Indonesia. This brought about the openness toward the participation of non-professionals and people-centered science. It is not an exaggeration to say that the revolutionary character of this period lies in the hands of non-professionals—those who had experiences in the real world, with broad education and interests. On the other hand, Guided Democracy became a time to execute a corporatist national plan, with an intense extension of the army’s involvement in bureaucracy and economy.⁴⁶

Jagus and the Politics of Knowledge Production

However, mass mobilization was not the sole strategy employed by BTI to liberate this productive power. Other strategies involved long and complicated research, political lobbying, financial support, and global networks. These processes can be best seen through the work of Jagus, a rice researcher in Klaten (central Java) and one of BTI’s prominent “heroes of production.” Born in Madiun in 1901 into a village head’s family, he finished his high-school education in the colonial agriculture school (*Cultuurschool*) in Malang in 1923. After finishing, he worked in a tobacco laboratory (Proefstation Vorstenlanden Tabak) in Klaten, where in 1929 he was assigned to the crop selection division. His interest in research and plant selection seemed to have begun there, where around the early 1930s, Jagus invented a type of tobacco with a larger leaf that was resistant to disease.⁴⁷ He began his research on rice in 1940 on wetlands (*sawah*), and in 1947 he became interested in developing

43 Ibid.

44 Asmu, “Pidato Asmu Ketua Umum,” 14.

45 *Suara Tani*, “Kuntji Sandang Pangan & Pembangunan.”

46 Fakhri, *Authoritarian Modernization*, 30, 34–37.

47 Jagus, “Pemuliaan Tanaman Padi I,” 10. Jagus named this type of tobacco *Groote Broek* (large pants). See BP, “Heboh Tentang Sri Daradasih.”

rice for drylands.⁴⁸ After Indonesian independence, Jagus worked as a crop selection assistant in the Agriculture Faculty of Universitas Gadjah Mada in Jogjakarta (1951–1958) and was later assigned to the Scientific Institute of Farm Research and Seeds (Jajasan Lembaga Penyelidikan Keilmiah Petanian dan Pembibitan—JLPKPP) in Klaten by the Farming and Agriculture Ministry on January 1, 1959.⁴⁹ Motivated by the urge to contribute to the nation, Jagus considered rice as a key to the State's economic and revolutionary strategies—no less important than other issues.⁵⁰

Using a mechanism of *bastaard-selectie* (selecting and cross-fertilizing hereditary characteristics from various types of rice until the best character appears in a new type), Jagus managed to create his seminal work in 1944, which is the Sri Dorodasih rice variety (taken from the name of his daughter).⁵¹ Research to invent Sri Dorodasih started in 1940, implementing *bastaard-selectie* from three grains of rice from the Rodjolele type. Jagus consulted with an unnamed Dutch genetic expert, who argued that his research was impossible, and that his invention was a mere coincidence, not a hereditary character. Ignoring this expert's view, Jagus continued his experiment until Sri Dorodasih was discovered. Jagus's rice contained 86 percent more grains than the usual Soblog rice at that time, which could only produce approximately 350 grains. His research continued throughout the 1950s, resulting in the development of high-yield, short-harvest rice varieties named Gendjah Harum and Gendjah Wangi.⁵² By 1958, he had already reached 1,346 types of hybrid rice for wetlands and 1,178 types for drylands.⁵³ The numbers increased in 1959, reaching 2,057 types of hybrid rice for wetlands. All of Jagus's seeds were created by extracting his long experience of crop selection into three principles: examining the best characteristics (including the hidden ones) of rice seeds, dismantling and rebuilding those characteristics, and mixing the best characteristics until they emerged in one new seed.⁵⁴

Most of Jagus's inventions were produced in JLPKPP in Klaten. This institute was established on November 4, 1958 and led by Dr. Tjokronegoro, who was introduced to Jagus's innovation at the Ministry of Prosperity's booth at an exhibition years before in Tjokronegoro's capacity as the Junior Minister for Agriculture (appointed in 1947). During the establishment of JLPKPP,

48 Jagus, "Karja Jagus."

49 Soemarso, R. *Kegiatan Jagoes*, no. 1784, Kementerian Pertanian.

50 Jagus, "Pemuliaan Tanaman Padi I," 9.

51 Jagus, "Seleksi Tanaman Padi," [ca 1960-65]. Continuing his research from 1940, Sri Dorodasih started with three grains of rice measuring 16 mm of the Rodjolele type, while the normal size is only 11 mm. Jagus, n.d., 6–7; Jagus, "Seleksi Tanaman Padi," 1961, 7.

52 1 ha of 250,000 rice plants was estimated to produce 625 quintals of rice. *Suara Tani*, "1 Ha Bisa Hasilkan."

53 Jagus, "Karja Jagus." The details of these varieties remain limited. Archival sources only show that Jagus conducted his research independently from the early 1940s. The numbers of rice varieties mentioned in this article were mostly processed and recorded by Jagus himself, until they were taken to JLPKPP.

54 Soemarso, R. *Kegiatan Jagoes*, no. 1784, Kementerian Pertanian.

Tjokronegoro was the the Regional Head of Klaten and a member of the Constitutional Assembly of Indonesia (1956–1959).⁵⁵ Although JLPKPP was an independent institute, it received subsidies from the Ministry of Farming and Agriculture. Between 1959 and 1962, it accepted a total of IDR 1,128,409 from the Ministry.⁵⁶ This demonstrates that Jagus's work, although claimed by BTI as an example of people-centered science, still relied on the support of the government and certain political actors, even foreign experts. Out of the thousands of rice seeds that Jagus studied, only four wetland rice seeds and one dryland seed were formally released by JLPKPP. While several cultivars showed promise, the productivity of all rice seed varieties had not yet been fully verified, and many were not yet ready for commercial distribution. Besides rice, JLPKPP also studied cotton from China (resistant to disease, long fiber up to 3–4 cm, and containing color), and soya beans from Indonesia, China, and the USA (larger and heavier beans). There is no indication that these cotton and soya bean varieties were released to the public in this period. The reason for JLPKPP's limitation was a mix of insufficient funding, limited facilities, and a lack of experts to continue the research.⁵⁷ For the rice varieties that were released by JLPKPP, BTI actively promoted their use. Promoting Jagus's seeds became not only BTI's strategy to contribute to resolving food production problems, but also a means to consolidate its masses of peasants and farmers who required practical solutions to their farming problems. For example, BTI Central Java initiated the formation of a Central Committee of Jagus Rice Seeds in 1960, followed by similar committees within and outside Java.⁵⁸ By 1964, Jagus's seeds were planted in Kalimantan and even West Papua, as part of the military division DAM VII Diponegoro's projects in Kampung Bestur, Sentani district, Papua.⁵⁹ This suggests a vast network of BTI's people-centered knowledge that connected independent research institutions, peasants, and government apparatus.

Jagus's contribution to rice research may have paved the way for his political role. In 1950, he became a member of the People's Representative Council in the Gotong Royong Cabinet (Dewan Perwakilan Rakyat Gotong Royong—DPR GR, the representative council during Soekarno's Guided Democracy period, which replaced the previous People's Representative Council), representing the farmers' group. After his inauguration, he met with President Soekarno to convey his research results, together with Dr. Tjokronegoro.⁶⁰ This meeting might have been triggered by, and perhaps aimed to resolve, the strong criticism leveled at Jagus and BTI farmers that I will discuss further in the next section. Jagus was also appointed a plenary member of BTI's Central

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ Ibid; *Suara Tani*, "1 Ha Bisa Hasilkan."

⁵⁸ *Suara Tani*, "Penanaman Padi Jagus Meluas."

⁵⁹ Jagus, "Pemuliaan Tanaman Padi II," 12.

⁶⁰ *Suara Tani*, "Karja Jagus Madju Terus."

Board of Directors in 1962.⁶¹ His political activities also stimulated him into building a global knowledge network, particularly with China. On October 19, 1960, together with Sobandi (head of BTI in West Java) and Sabar Sitepu (a farmer from North Sumatera), Jagus traveled to China at the invitation of Chinese agricultural and forestry workers.⁶² He was also involved in the Asian-African and Latin American scholars' symposium in Beijing in 1964 as the representative of the BTI plenary members.⁶³

Presumably, Jagus's political activism with BTI influenced his thoughts on people-centered strategies, particularly in seed distribution. In a 1963 seminar on farm production and the 1001 movement (a PKI campaign to boost food production, launched in 1963, which included planting food crops at home, maximizing land use, and using potential seeds), Jagus elaborated his thoughts on collective rice seedlings.⁶⁴ First, he proposed a village seed farm, collectively managed by surrounding villagers so that a continuous supply of seedlings would be available for the entire community. Second, he proposed creating a village seed barn as a central storage location and distributing the seedlings cooperatively to all villagers. Third, he also proposed a mechanism for distributing seeds from JLPKPP to every village farm, so that all peasants would continuously obtain superior seeds for each planting season.⁶⁵ These proposals demonstrate that Jagus had begun to think beyond innovation, and had started to broaden the use of his superior seeds. His suggestions went beyond a State-centric mechanism, and strongly relied on village collectives and the people themselves, including the connection between the research center and the peasants. To implement the idea of a mechanism for distributing seeds, the Jagus Foundation was established in Jakarta on July 18, 1963. The management consisted of Jagus, Hamdi, Soebandi, Tan Eng Tie, Harsono A.M., Liem Koen Seng, Oej Poej Tjhip, and others. Their aim was to establish other research centers on rice seeds and experimental farms, organize education and training for peasants, and initiate national collaboration to increase rice production.⁶⁶

From Skepticism to Annihilation

Despite the successes of BTI's agricultural scientists, they also triggered ample criticism. One example of harsh criticism came from Hasmosuwignja, the head of People's Agriculture of Central Java, as I mentioned at the beginning of this article. In response, DPP-BTI representatives went directly to Bogor to

61 Asmu, "Pidato Asmu Ketua Umum," 15.

62 *Suara Tani*, "Delegasi Kaum Tani."

63 *Suara Tani*, "Foto Jagus." I was unable to obtain more information on this event.

64 Jagus, "Pola Meluaskan Penanaman Padi," 21; Barisan Tani Indonesia, "Resolusi Politbiro CC PKI."

65 Jagus, "Pola Meluaskan Penanaman Padi."

66 *Harian Rakjat*, "Jajasan Jagus Didirikan."

examine the trial of the five principles and Jagus's rice. They concluded that the trial had not implemented the five principles completely, and also pointed to other factors such as a lack of seriousness on the part of the workers at the institute, and the use of insufficient fertilizer in the trial. DPP-BTI representatives later decided that the principles could be adjusted to the conditions and abilities of the peasants themselves, and that Hasmosuwignjo had been too strict with the numerical calculations.⁶⁷

Jagus's rice variety was even accused of being "nonsense."⁶⁸ This harsh opinion was based on the government-owned Bogor Rice Research Institute trials which concluded that Jagus's rice could not be considered a new variety and that it was not extraordinary when compared to other rice such as Sigadis or Bengawan. In response, Jagus explained that the trial in Bogor was conducted without his permission. According to Jagus, one trial with an unclear type of seed could not prove his invention was nonsense. Years of research were needed, instead of simply one or two trials.⁶⁹ Throughout this debate, BTI's argument remained consistent in defending the people-centered science. As one DPP-BTI staff member stated, "creativity from farmers and peasants cannot be halted. On the contrary, they keep growing, followed by convincing results."⁷⁰ Criticisms such as Hasmosuwignja's were considered anti-people and anti-development, because they perceived "all new inventions from the people are always obliterated. ... the people are always wrong, always foolish, always unscientific."⁷¹ PKI chairman Aidit called these types of people "textbook brains" (*berotak buku*),⁷² referring to Soekarno's criticism of textbook thinkers—scholars or professionals with a high level of education but without the ability to provide solutions to concrete problems.⁷³

The intensity of this debate may have led the Agriculture Department to initiate a comprehensive study of Jagus's rice in January 1965. The examination was conducted through interviews with Jagus and his assistants at JLPKPP, and surveys in villages in Klaten and nearby locations that had used Jagus's rice seeds.⁷⁴ In short, the study stated that Jagus, through his field-based science, had successfully created new rice varieties with impressive qualities. However, based on farmers' testimonies, while these varieties could increase rice production initially, yields gradually declined over time. Moreover, the seeds were limited to a single planting season, and could not be reproduced as seedlings for use in subsequent seasons. The report also pointed out that Jagus's findings were premature for publication and required further research. To this end,

⁶⁷ *Suara Tani*, "Kembangkan Lima Prinsip."

⁶⁸ *Ibid.*, 5.

⁶⁹ *Suara Tani*, "Pak Jagus."

⁷⁰ *Suara Tani*, "Pertjobaan Tanam Padi."

⁷¹ *Suara Tani*, "Kembangkan Lima Prinsip," 6.

⁷² *Suara Tani*, "Kuntji Sandang Pangan & Pembangunan."

⁷³ Fakih, *Authoritarian Modernization*, 37.

⁷⁴ Soemarso, R. *Kegiatan Jagoes*, no. 1784, Kementerian Pertanian.

massive support would be needed, especially in terms of funding and research facilities for JLPKPP.⁷⁵ The report concluded that although Jagus's seeds had the potential to increase rice production, it was too early for implementation on a national scale.

The innovations of these BTI figures diminished along with the anti-communist operation in 1965–1966. Following an attempted coup called the 30 September Movement, a nationwide military operation to annihilate PKI, BTI, and other leftist activists was launched. Approximately 500,000 to a million people disappeared or were killed, while others suffered gross human rights violations.⁷⁶ The trauma lingered for generations, as family members faced structural discrimination and stigma rooted in the rise of Suharto's authoritarian government (1966–1998). The fate of BTI's heroes of production such as Martosuwondo, Krisman, and others, remains unknown. Jagus was detained by the military in Klaten, but was released several months later.⁷⁷ The military closed JLPKPP's office, and confiscated and destroyed documents. After his release from detention (in 1965 or 1966), Jagus never returned to his crop research until his death in 1975.⁷⁸ Jagus's family members have to keep a low profile and, to some extent, bear the trauma of this violence. His contributions have been erased from Indonesian historiography, and his rice varieties have been eclipsed within the country's agricultural landscape. The anti-communist purge erased the existence of these heroes of production and their work.

Conclusion

The case of BTI's heroes of production demonstrates the era when science became part of a social movement. In Indonesia's decolonial period of the 1950s and 1960s, the leftist movement tried to dismantle the inheritance of the colonial structure by challenging the monopoly of agricultural knowledge. In its view, knowledge production ought to be in the hands of the people and based on their needs, not on exclusive agendas of certain institutions. This period also became the only moment in Indonesian history when science played a crucial part in the country's peasant movement. Agricultural innovations became a pivotal strategy in agrarian movement at that time, along with cadre schools or teachings of Marxist-Leninist ideologies.

At a glance, the criticism leveled at BTI's agricultural innovations appears to illustrate a disparity between institution-based and people-centered science. However, a closer examination of the development and dissemination of these innovations reveals that this was not a clear-cut division. BTI collaborated

⁷⁵ Ibid.

⁷⁶ See Komisi Nasional, *Ringkasan Eksekutif Laporan Penyelidikan*.

⁷⁷ Leksana, "Jagus Dan Hilangnya Kedaulatan."

⁷⁸ Ibid.

with party leaders, government officials, including President Soekarno, and even foreign researchers, to consult, secure funding, gain institutional recognition, and distribute their innovations to farmers. Even the colonial structures they sought to dismantle contributed to shaping the knowledge and skills of these leftist scientists. Consequently, despite their criticism of “textbook brain” researchers, BTI acknowledged the significance of collaborating with them. In short, the decolonization of agricultural knowledge by Indonesian leftists was contingent on a vast network extending beyond “the people” themselves. Moreover, right from its establishment, BTI realized that agricultural science was also crucial for providing practical solutions to the peasantry, and vice versa—that these science-based solutions could help mobilize the masses. Beyond an ideological commitment to people power, there were clear pragmatic reasons behind the intertwining of science and the grassroots movement. To some extent, this resulted in an exaggeration of their members’ agricultural innovations, or the premature promotion of research that required further verification.

Looking at this achievement, the anti-communist violence in 1965–1966 was a profound blow to the connection between science and the agrarian movement in Indonesia, erasing not only the leftist intellectuals in universities⁷⁹ but also the people-centered scientists entrenched in agricultural communities. Even worse, the violence also disconnected science from the grassroots movement, removed the people from processes of knowledge production, and returned science to the confinement of elite institutions or placed it in the hands of multinational companies.

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⁷⁹ Wahid, “Counterrevolution.”

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