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Farmer movement oversight of the Mexican Government's scaled-up fertilizer program

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ABSTRACT
How can national policies to promote food self-sufficiency also enable agroecological transitions? Mexico's recent agricultural policy priorities shifted from larger, irrigated farmers to focus mainly on rainfed smallholders. Recent national policies emphasize both food self-sufficiency and agroecological goals. Yet government funding for conventional agriculture also continued – including the national scaling up of a program that delivered free chemical fertilizer to smallholders. This study uses institutional analysis to analyze this program from the perspective of a state-wide farmer-led oversight campaign led by advocates of sustainable agriculture. Community-based policy monitoring combined with multi-level advocacy broadened access to the program and reduced corruption, while also calling for biofertilizer options and investment in soil health.

KEYWORDS
Food self-sufficiency; agroecological transitions; farmer oversight; agricultural policy; Mexico

SUSTAINABLE DEVELOPMENT GOALS
SDG 1: No poverty; SDG 2: Zero hunger; SDG 16: Peace, justice and strong institutions

Introduction

National food self-sufficiency policies have an ambivalent relationship with sustainable agriculture. Food self-sufficiency policies can potentially create an enabling environment for agroecological approaches.[1] Yet production-first goals can also reinforce conventional policies, such as subsidies for chemical fertilizer and unconstrained pesticide use. Policymakers also have powerful political incentives to deliver subsidized fertilizer to smallholders. For grassroots promoters of agroecological alternatives, large-scale distribution of subsidized chemical fertilizer constitutes "unfair competition" – and excludes organic producers. As a result, conventional approaches to promotion of food self-sufficiency can pose dilemmas for advocates of sustainable agriculture, as evidenced by Mexico's ongoing agricultural policy transition.

These possible tensions relate to debates over the role of the state in agroecological transitions (e.g., Giraldo and McCune 2019; Giraldo and Rosset 2017). Will government policies inherently coopt and dilute transformational alternatives? Are farmer-to-farmer dissemination strategies the only

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viable pathway to reach scale? Or is government support also necessary to enable the uptake of agroecological practices to reach significant scale, even if such policies are not holistic and coexist with still-dominant conventional agricultural policies? Either way, the role of the state matters for the possible scaling of agroecological transitions – either as obstacle, enabler – or potentially both.

This focus on the contradictory role of the state underscores the relevance of analyzing the political dynamics of agricultural policy transitions. The political agroecology approach contributes to the design of enabling public policies, while recognizing that most often such policies at best coexist with and rarely challenge the persistent hegemony of government support for conventional agriculture (González de Molina et al. 2020; Mier y Terán Giménez Cacho et al. 2018). Studies of scaling agroecology emphasize the tension between peasant-led sustainable agriculture and large-scale industrial agriculture. This study focuses on a different possible arena of tension – between efforts to scale agroecological approaches and large-scale government subsidies for chemical fertilizer for smallholders.[2]

Mexico's recent experience is a case of a contested agricultural policy transition, with both agroecological and conventional approaches promoted by different factions within the same government.[3] The government elected in 2018 prioritized national food self-sufficiency, under the rubric of its "Fourth Transformation" political project (Bartra et al. 2023; Suárez Carrera 2023). The administration began by eliminating a wide range of inherited agricultural programs – both expensive marketing subsidies for large commercial growers and numerous smaller, discretionary programs widely seen as high corruption risks and discretionary political slush funds. The new policy strategy combined production subsidies, crop support prices, trade policies, the reactivation of petroleum-based national fertilizer production, a new sustainable food law, as well as a large-scale agroforestry program Sowing Life (*Sembrando Vida*) and high-profile phase-outs of a leading herbicide and imports of GM corn (as well as a ban on GM corn cultivation). Overall agricultural funding priorities shifted from larger, irrigated farmers in the North to focus on rainfed smallholders in the South.[4] One large step in that direction involved changes in the largest national production subsidy program, Production for Welfare (*Producción para el Bienestar*, formerly known as *Procampo*), which limited its payments to producers with less than 20 hectares and expanded coverage to include more indigenous farmers (Subsecretaria de Autosuficiencia Alimentaria 2023).[5]

Mexican agroecology agenda-setters see a "big bang" and "agroecological revolutions" in progress during the Fourth Transformation government (Bartra et al. 2022; Toledo 2022; 2023a, 2023b, 2023c; Torres Mazuera 2023; Wise 2023a). Several national programs led the way, including the national agroforestry program Sowing Life and the expansion of an agroecological

training component within Production for Welfare.[6] At the same time, powerful resistance to policy change persisted both inside and outside the state – notably involving policies toward agrochemical inputs.[7] The government's declared ban on glyphosate – widely hailed by agroecology advocates – was contested by agribusiness interests, leading the government to pause implementation (Gilliam and Hettinger 2024; Toledo 2024; Wise 2021). The US government also resisted the proposed ban on GMO white corn, seeking recourse through the North American trade agreement adjudication process. Behind the scenes, years-long efforts within the Mexican government to develop stricter regulations of highly toxic pesticides encountered behind-the-scenes opposition that prevented reforms from reaching the public comment stage during the first Fourth Transformation government.

This study focuses on peasant movement efforts to influence another large national program, Fertilizer for Welfare (*Fertilizantes para el Bienestar*), which provided free chemical fertilizer for smallholder grain producers, covering up to 2 rainfed hectares each. This federal initiative took over a longstanding state government program (in Guerrero) and expanded it nationwide – reaching almost 1.8 million producers and 3 million hectares with 882,744 metric tons by the end of 2023 (Presidencia de la República 2024, 494). In response, an unusually broad-based network of agrarian community leaders in the state of Guerrero advocated program improvements to broaden access, to limit corruption and to also fund biofertilizer options. In 2024, by the end of the administration's six years, access had expanded significantly, though the program still exclusively funded a standard package of synthetic fertilizer.

This study begins by introducing the research methods, followed by national policy context and analysis of the implementation of the fertilizer program in the state of Guerrero, concluding with an assessment of Mexico's ongoing agricultural policy transition. This experience sheds light on the contested combination of continuity and change in ongoing efforts to scale up government support for agroecological alternatives.

Methods

This analysis of a peasant movement campaign to improve a government agricultural subsidy program focuses on the state of Guerrero, where it originated and continued to have the most extensive coverage of producers. The research methods combine historical analysis of agricultural policy context with institutional analysis of contemporary government programs – grounded in the coauthors' longstanding experience with relationships between farmers organizations and government programs. The 2020–2023 community-based monitoring of government agricultural policy in Guerrero was grounded in official assemblies of agrarian communities, where farmers publicly shared testimony of their experiences

with government programs. The research presented here is a retrospective analysis of this campaign experience, combining recollection of practitioner action in the field with campaign documents, public official data on administrative actions, program budgets and agrarian reform titleholders, as well as related reports published by three semi-autonomous federal government public oversight institutions, the National Evaluation Commission (*Consejo Nacional de Evaluación de la Política de Desarrollo Social*, CONEVAL), the Federal Audit Bureau (*Auditoría Superior de la Federación*, ASF) and the National Information Access Institute (*Instituto Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales*, INAI).[8] One of the coauthors served as an advisor to Guerrero's statewide network of elected agrarian community leaders and is also a convenor in the state's informal network of agroecology promoters. To identify factors that enable or block sustainability transitions, this study's multi-level analytical framework addresses the roles of different actors within both state and society, at local, regional and national levels (Fox and Aceron 2016).[9]

Historical context: the ebb and flow of fertilizer subsidies

The relationship between the Mexican government's fertilizer program and the peasant movement in Guerrero was influenced by two national historical legacies. First, state intervention played a major role throughout the food system, at least until the structural adjustment policies of the 1980s. Current policies revive that approach. Second, the producer movement response to the recent federal fertilizer program was influenced by Mexico's large-scale post-revolutionary land reform, which left a legacy of weakened but persistent official agrarian community institutions, known as *ejidos*.

Mexico's mid-century system of state intervention in agriculture involved every link in the food supply chain except direct production. Large-scale public investment in irrigation enabled agro-export growth and the rise of an agribusiness class, while the production of basic foods enabled urbanization and industrialization. The government provided applied research, seeds, agrochemicals, credit, insurance, irrigation (including energy for pumps), technical assistance, crop procurement, storage, processing, marketing and retail distribution – all within a national economy then partly insulated from international trade (Fox 1992). Empowered by Mexico's oil boom, in 1980 the government attempted to recover food self-sufficiency with the Mexican Food System (*Sistema Alimentario Mexicano*, SAM), which reverted years of neglect of rainfed smallholder agriculture (Fernández 2017). The SAM's ambitious strategy deployed an unusually systemic approach and farmers responded by increasing production. Some government agencies also promoted official community oversight measures

to improve performance, most notably in the rural food store program (Fox 1992). An innovative program to reimburse smallholders for the cost of transporting their crops to government procurement centers explicitly empowered *ejidos* to participate in program oversight and evaluation (BORUCONA 1982, 4).

The SAM had broadened coverage of conventional inherited agricultural programs by adding some smallholders to the government's primary focus on market-oriented, largely irrigated medium-sized and larger producers. This "trickle-down/add-on" approach turned out to be financially unsustainable and the incremental broadening of smallholder access was brief (Fox 1992). In contrast, the Fourth Transformation government shifted the primary emphasis of agricultural policy from larger, more irrigated producers to rainfed smallholders.

Then and now, both self-sufficiency strategies shared an emphasis on broadening smallholder access to chemical fertilizers. The SAM strategy was informed by *Plan Puebla*, a 1960s regional policy experiment that responded to the failure of the Green Revolution to benefit rainfed maize producers. That approach increased productivity primarily through increased (subsidized) fertilizer use and plant density on small plots, enabled by increased access to credit via farmer groups.[10] SAM also both expanded access to credit and cut agrochemical prices by 30% for grain producers – via a bureaucratically complex rebate mechanism that had the effect of excluding smallholders from access to the discount (Fox 1992, 103–105). In contrast, the current Fertilizer for Welfare program delivers bags of free fertilizer directly to producers, without subsidized credit, hybrid seed or technical support.

Following the 1982 debt crisis and the end of SAM, the government cut input subsidies and privatized fertilizer production and distribution (SADER 2023c).[11] Yet in the state of Guerrero, a legacy of civic and social movement protest against authoritarian rule led to a rare political opening in the mid-1980s. A reformist governor combined an "on your honor" farm credit program with a government fertilizer agency that partnered with unions of *ejidos* to ensure distribution before the rainy season and to collect the soft loans for reinvestment in local public goods, such as corn storage facilities (García Jiménez 2023, 28–29). This opening did not last. The next governor rejected partnership with organized smallholders, who then created their own autonomous fertilizer distribution networks, reaching 40,000 producers. In 1994, an even more hard-line governor closed this space and transformed the state fertilizer program into a top-down tool of political control. In 1995, that governor was implicated in the Aguas Blancas massacre, when a contingent of peasants on their way to a protest (for fertilizer) were ambushed and murdered by the state police, while officials flew in a helicopter overhead. Though the governor was forced to resign, traditional politicians continued the fertilizer program's combination of corruption, adulterated fertilizer, vote-buying and

promotion of agrochemical dependence, eventually using diverted municipal social funds intended for public works.[12]

Also during the early 1990s, at the national level, a president widely seen as fraudulently elected declared the agrarian reform over, legalized the (voluntary) privatization of *ejido* land, and opened up the agricultural sector to US imports. This led most analysts and activists to predict that *ejidos* and agrarian communities would become irrelevant relics. In the absence of government support for these inherited local agrarian governance institutions, peasant movement organizers in Guerrero built other kinds of organizations to pursue their visions of self-managed, community-based development – ranging from social enterprises to indigenous rights advocacy, environmental defense and community police.

Fast forward through Mexico's protracted transition to electoral democracy and in 2018, the Fourth Transformation government was elected in a landslide vote. Diverse rural social organizations participated in the campaign, building on the previous decade's electoral mobilizations under the umbrella of the 21st Century "Plan de Ayala" Peasant Movement (*Movimiento Campesino "Plan de Ayala" Siglo XXI*).[13] This platform updated a discourse that recalled the promises of the Mexican Revolution and the original Zapatista agrarian rights movement.[14]

After the 2018 election, new president Andrés Manuel López Obrador took federal control over the state program, renaming it Fertilizer for Welfare. He promised that it would benefit all peasants and would include organic fertilizer.[15] Yet managing the program's transition to federal control proved very challenging – the government's improvised approach excluded many smallholders and either delivered fertilizer too late in the season to be useful, or not at all. The program's few brief alternatives to chemical fertilizer in 2019 were erratic, ineffective and discontinued (García Jiménez 2023). In addition, the incoming government gave the job of fertilizer distribution to a new federal agency, *Segalmex*, that turned out to be very corrupt (at least in its first two years).[16] Plus, the new government rejected collaborative implementation of agricultural programs with autonomous peasant organizations, in the name of bypassing "intermediaries" (Núñez Membrillo 2021).

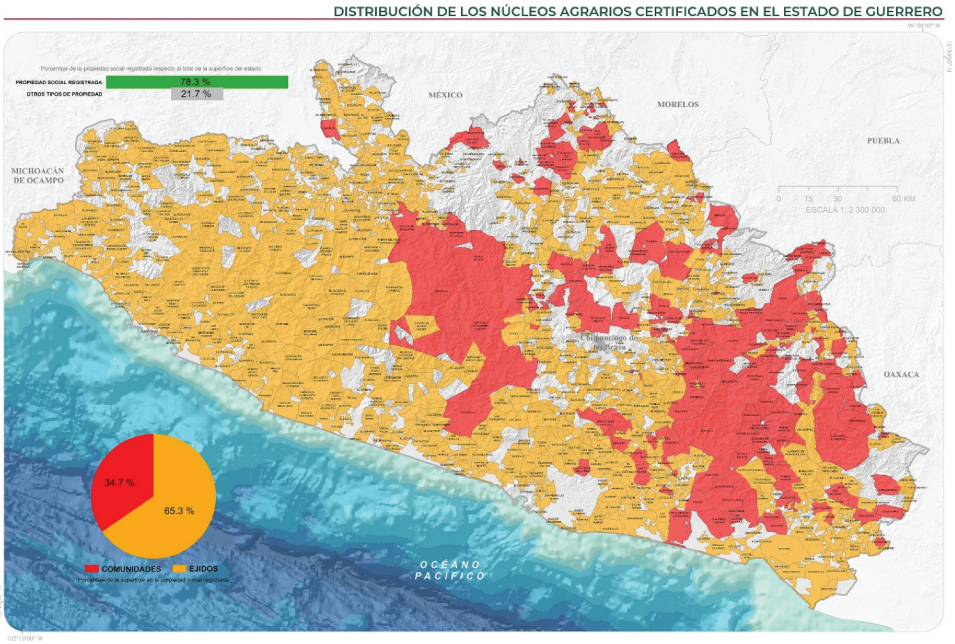
From protest to proposal

The 2019 fertilizer delivery problems led to chaos, as angry farmers took over warehouses and trucks, blocked highways, and detained government officials. After all, the state's unofficial nickname is *Guerrero bronco*—"angry Guerrero" (Bartra 1996). Veteran activists from the autonomous peasant movement responded to the tumultuous federalization of the program by leading a transition "from protest to proposal." Many of these organizers had spent

years building autonomous regional producer and consumer organizations, trying to find cracks in the dominant system and build statewide networks to advocate for more open, participatory, and pro-peasant rural development policy (Bartra 2000; Bartra 2014; Fox, García Jiménez, and Haight 2009).

In response to this turmoil, Guerrero rural community organizers created a constructive alternative by building a broad-based grassroots oversight network to encourage the government to put into practice its promises of more benefits for the poor, with less corruption. This organizing strategy followed a new path by networking among elected *ejido* leaders and informing *ejido* assemblies. In contrast to the previous two decades of peasant organizing in Mexico, which had mainly involved either autonomous producer organizations or partisan political machines dependent on government funding, this new network in Guerrero was grounded in the legacy of the agrarian reform that followed the 1910–1917 revolution. Nationwide, this legacy includes more than 32,000 elected *ejidos* and agrarian communities, which hold title to just over half of Mexico's land.[17] In Guerrero, with its vibrant history of peasant organizing, *ejidos* and agrarian communities hold title to 78% of the land (see Map 1).

Guerrero became one of the few states in Mexico where the peasant movement sustained momentum after the 2018 election and transformed itself into an initiative to hold the new government accountable for its



Map 1. Agrarian reform lands in the state of Guerrero. Source: Registro Agrario Nacional (RAN) Note: This map identifies only certified agrarian reform lands (*ejidos* in orange, agrarian communities in red). Some have not completed their certification.

campaign promises. Rural activists convened community consultation assemblies to share proposals for new government policies, leading to a statewide convention in 2019 that drew 1000 delegates, including elected leaders of more than 400 ejidos and agrarian communities. They launched the Guerrero Network of Ejido and Communal Commissioners (*Coordinadora de Comisariados Ejidales y Comunales de Guerrero*), which combined grassroots organizing, statewide convening and multi-level monitoring of rural programs with policy advocacy to improve the government's delivery of agricultural support services.[18] Organizers called their policy monitoring and problem-solving efforts "*contraloría campesina*" (peasant oversight).[19]

The Guerrero *ejido* network called for public dissemination of the program's rules of operation, monitoring delivery to farmers, and assessing results. Their proposals for improvement contributed to a more effective and much less tumultuous distribution process. *Ejido* leaders brought a high degree of local legitimacy and legal recognition to their campaign for oversight, in the face of obstacles that included their aging membership, lack of government support, a legacy of clientelism and the spread of organized crime in their territories. Their independent monitoring strategy emphasized community validation in *ejido* assemblies, where community members reviewed official lists of program beneficiaries to ensure that they only included actual producers. These watchdog efforts both cleaned up the roster of beneficiaries and helped small farmers to overcome bureaucratic obstacles to access. This assembly-based community oversight strategy was backed by officials from federal land tenure agencies – the National Agrarian Registry and Agrarian Attorney's office. Officials from the Secretariat of Agriculture and Rural Development (*Secretaría de Agricultura y Desarrollo Rural*, SADER) were much less responsive.

The *Coordinadora's* oversight strategy also deployed targeted transparency for accountability. This involved dissemination of key information to farmers, such as the program's operating regulations, lists of beneficiaries, and locations of distribution centers. The campaign obtained relevant information on the program by filing data requests through the official public information access system. They also used the government's own policy evaluations and audits to identify official evidence of problems with implementation of the Fertilizer for Welfare Program.[20]

Yet the leverage of Guerrero's peasant movement monitoring and advocacy was limited to local problem-solving involving producer access and program operations. The *Coordinadora's* proposals for overcoming the program's structural deficiencies were not considered by SADER because this would imply acknowledging the problems pointed out by the peasant movement oversight and granting a more active role to the *Coordinadora*. SADER officials rejected their suggestions for program improvement with the

argument that the government's public policy was to stop funding "intermediaries" – such as producer organizations, even though the Coordinadora did not propose to participate in the Fertilizer for Welfare Program's operations, nor to receive resources.[21]

This lack of space for collaborative governance of the fertilizer program in Guerrero reflected divisions within the federal government, between factions that were more vs less responsive to smallholder organizations. At the national level, the fertilizer program was managed by the dominant faction in the Agriculture Secretariat, which is widely associated with agribusiness interests. Mexican political commentators agreed that the Secretary's appointment was the result of a political pact between the president and big business elites (Hernández López 2022). At the same time, AMLO had named a longtime political ally and peasant movement/agroecology advocate to be Undersecretary of Food Self-Sufficiency (Suárez Carrera 2023). That branch of SADER controlled the Production for Welfare program, with its growing agroecology training/accompaniment program – but did not have influence over the fertilizer program.[22]

Advocacy to improve the fertilizer for welfare program

In 2020, the new federal program's second season, the peasant oversight process managed to help approximately 50,000 producers get access to the program, which reached 340,000 in total in the state (DeTura and García Jiménez 2021). Plus, most of the fertilizer was distributed in time for the planting season. This initial traction encouraged the *Coordinadora* to develop a package of 15 specific proposals to improve the fertilizer program's operating regulations for the 2021 season – such as including beneficiary committees in the oversight of delivery operations; more coordination among government agencies; soil studies to inform the appropriate fertilizer to apply; keeping political parties out of the distribution process; firing specific corrupt officials; including organic fertilizer options, local seed, and support to establish "biofactories" to locally produce agroecological inputs; as well as participatory technical support to support transitions from agrochemical dependence to agroecological production (DeTura and García Jiménez 2021).

SADER officials rejected all the proposals. The government's only concession was to agree to allocate three percent of its proposed 2021 budget in the state to "agroecological innovations." They did not deliver, instead diverting those funds to "other priorities." In the following year, the program's 2022 operating regulations returned to the previous position of avoiding any specific agroecological commitments. During this period, a strongly pro-agroecology national Secretary of the Environment publicly declared his frustration with agricultural policy's emphasis on agrochemicals, and he left office after less than a year.[23]

Table 1. Government agricultural programs in Guerrero, 2022.

	Pesos (millions)	% of total government support	Coverage	Beneficiaries
Federal programs				
Fertilizer for Welfare	2,000	29.5	505,260 ha	329,410
Sowing Life	2,340	34.5	97,500 ha	39,000
Production for Welfare	982.5	14.4	378.1 ha	150,417
Guaranteed Prices	1,200	17.7	200,000 m. tons	6,634
Subtotal	**6,522.5**	**96.2**	-	**525,461**
State government				
Guerrero agricultural agency (Sagradegro)	257	3.8	Not available	Not available
Total	**6,779.5**	**100**	-	-

Source: Authors' analysis of data from Suri and SADER bulletins.

The fertilizer program reached more producers in Guerrero than any other government agricultural program (more than 329,000 in 2022). Another national SADER production subsidy program, Production for Welfare, had the second-broadest reach and covered less than half as many producers in the state (150,000) (Table 1). The national Social Welfare Secretariat's high-profile Sowing Life agroforestry program received more total funding but reached only 39,000 producers in Guerrero in 2022 (see Table 1).

Most remarkable about the Fertilizer for Welfare Program's broad coverage in Guerrero is that, according to official data for 2021, 46% of beneficiaries were women, 29% were indigenous, and 67% were in the state's three lowest-income regions (see Table 2).[24] Though women represent an increasing share of *ejido* title-holders nation-wide (27% across Mexico and 37% in Guerrero), it was remarkable that they represented a much higher share of the state's

Table 2. Fertilizer program beneficiaries in Guerrero, 2019–2021.

	2019	2020	2021
Beneficiaries in Guerrero			
Total	278,547	340,643	334,311
Women (%)	43.75	45.01	46.29
Indigenous (%)	22.71	18.78	29.55
Distribution of beneficiaries across regions of Guerrero (%)			
Montaña	22.09	24.13	24.46
Centro	23.02	23.06	23.04
Costa Chica	20.63	19.00	19.47
Norte	14.28	13.77	13.34
Tierra Caliente	10.79	11.01	11.10
Costa Grande	5.78	5.85	5.71
Acapulco	3.40	3.17	2.90
Crops (%)			
Corn	99.09	97.09	95.85
Beans	0.77	2.7	3.91
Rice	0.14	0.21	0.25

Source: García Jiménez (2023, 58). Based on official government beneficiary data disclosed in response to public information requests. Note: Because of the difficult initial transition in program management from the state to the federal government, 2019 data are less reliable. Data registered for indigenous participants in Guerrero is also anomalous, because of the large change in percentage from 2020 to 2021 in the absence of significant changes in total coverage or regional distribution.

Fertilizer for Welfare Program recipients (possibly related to high rates of male out-migration).[25] By 2022, SADER had also improved its public disclosure of relevant information about the Fertilizer for Welfare Program, publishing data that identifies specific bottlenecks for producer access to the roster.[26]

The program's national rollout reached more than 800,000 beneficiaries in nine states by 2022—including almost a quarter million smallholders in Chiapas and over 150,000 in Oaxaca, primarily in indigenous localities.[27] The program continued to emphasize the state of Guerrero, with more than 38% of the national budget allocation in 2022 (Table 3). Within Guerrero, the fertilizer program continued to reach a much larger share of producers than in any other state – more than 43% - plus more than two thirds of the arable land (Table 3). By 2023, the other priority states were Chiapas, Oaxaca, Puebla, the state of Mexico and Veracruz (Table 4).

The nationwide expansion of the program reached more than 1.7 million producers in 2023 (see Table 4 and Presidencia de la República 2024). SADER built an extensive national network of distribution points, with broadest reach in Guerrero (see Map 2). The free fertilizer continued to be a standard package of urea and nitrogen-phosphorus for up to two rainfed hectares, without soil testing or variation to adapt to diverse soil conditions.[28] SADER officials and ejido leaders reported that the program's expansion to other states encountered delivery challenges. By the end of the 2018–2024 government, the program continued to lack biofertilizer options.

In 2024, a new government impact evaluation found that the program effectively targeted smallholder corn producers, with an average age of 54 and less than six years of schooling – including landless renters as well as titleholders (SADER/INCA RURAL 2024).[29] Though 81% reported already using fertilizer, the evaluation found that the program increased beneficiaries' production by approximately 700 kilos on average and substantially reduced their costs of production during a time period when the market price of fertilizer spiked (SADER/INCA RURAL 2024, 219).[30] Of program beneficiaries surveyed in 2022, 27% cultivated less than one hectare, 40% between 1 and 3 hectares and 23% between 3 and 5% hectares (ibid,187). They used 45% of

Table 3. Fertilizer for welfare program: indicators of coverage (2022).

	Program beneficiaries as a share of producers (%)	State share of national program budget (%)	Share of state arable land covered by the program (%)
Chiapas	20.1	23.4	22
Durango	0.5	0.6	2
Guerrero	43.5	38.8	71
Morelos	0.7	0.8	7
Nayarit	2.9	2.3	10
Oaxaca	24.0	25.9	36
Puebla	3.9	3.5	5
Tlaxcala	3.4	3.6	21
Zacatecas	1.0	1.1	2

Source: SADER/INCA RURAL (2022, 59–60)

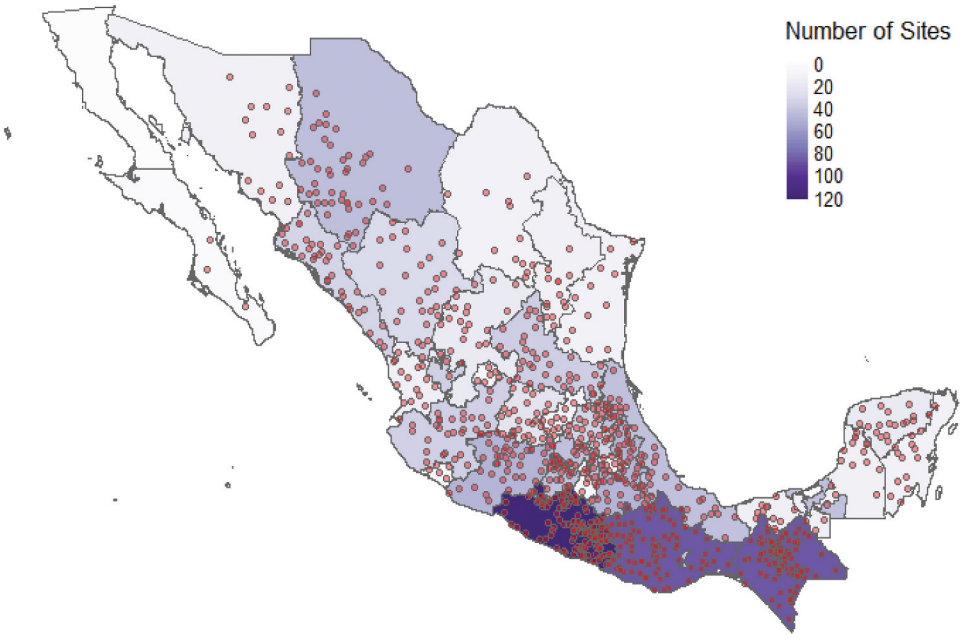
Table 4. National fertilizer program coverage, by state (2019–2023).

	2019	2020	2021	2022	2023
	278,547	**369,121**	**402,999**	**803,143**	**1,715,000**
Guerrero	278,547	340,640	340,463	340,640	387,077
Morelos	-	4,979	5,795	6,437	8,817
Puebla	-	14,200	30,411	30,868	91,609
Tlaxcala	-	9,302	26,330	23,214	26,947
Chiapas	-	-	-	196,321	217,919
Oaxaca	-	-	-	186,501	184,208
Durango	-	-	-	4,221	40,134
Nayarit	-	-	-	7,111	24,458
Zacatecas	-	-	-	7,830	56,805
Campeche	-	-	-	-	23,673
Cd. De México	-	-	-	-	3,766
México	-	-	-	-	84,529
Quintana Roo	-	-	-	-	25,641
Tabasco	-	-	-	-	12,275
Veracruz	-	-	-	-	79,664
Aguascalientes	-	-	-	-	6,421
Baja California	-	-	-	-	22
Baja California Sur	-	-	-	-	65
Chihuahua	-	-	-	-	48,086
Jalisco	-	-	-	-	44,769
Sinaloa	-	-	-	-	37,395
Michoacán	-	-	-	-	61,257
Tamaulipas	-	-	-	-	21,296
Guanajuato	-	-	-	-	45,752
San Luis Potosí	-	-	-	-	42,730
Hidalgo	-	-	-	-	63,016
Yucatán	-	-	-	-	33,711
Nuevo León	-	-	-	-	12,304
Querétaro	-	-	-	-	16,481
Sonora	-	-	-	-	6,137
Coahuila	-	-	-	-	5,593
Colima	-	-	-	-	2,443

Source: SADER (2023c, 23–24)

production for on-farm consumption, further confirming the program's targeting of smallholders (ibid, 195). The evaluation also confirmed that the program reached female and indigenous farmers, with women accounting for 40% of beneficiaries surveyed and 41% reported speaking an indigenous language (ibid 182–183).[31]

The evaluation also found that the amount of fertilizer delivered varied by state, in contrast to the stated national policy of delivering fertilizer for 2 hectares. It reported deliveries in 2022 with quantities up to one hectare in Chiapas and Oaxaca, in Guerrero half of the beneficiaries received fertilizer for one hectare and the other half for two – with quantities for up to 10 hectares in Sinaloa – "this as a function of the characteristics of the producers" (ibid, 68; 131). Overall, in 2022, 72% of beneficiaries received fertilizer for only one hectare (ibid, 130). Apparently, the program's scaling up to reach more producers in more states led to smaller amounts for most participants, except for recently-added larger commercial growers in Sinaloa – leading evaluators to express concern about the weakening of the program's targeting of smallholders. Another factor in addition to reduced delivery amounts may have



Map 2. Density of government fertilizer program distribution points (red dots). Source: SEGALMEX (2024) (accessed July 25, 2024). https://www.google.com/maps/d/u/0/viewer?mid=1kbPenLnH5PscaB7VhfYooov0e6ltFIc&ll=23.020673004487072%2C-99.58709099999999&z=5

reduced the program's contribution to productivity – the persistent delays in fertilizer delivery to producers. In 2022 almost 15% of producers received the fertilizer in September or later, too late in the season to contribute to corn productivity. Almost 40% reported receiving the fertilizer in August, yet it has the greatest productivity impact if applied in June or July (ibid, 27). Therefore, the majority of beneficiaries received the fertilizer too late to achieve maximum productivity impact – and most in quantities insufficient to cover a full two hectares. The apparent persistence of delivery delays over several years, perhaps exacerbated by the rapid scale-up, underscores the relevance of including beneficiaries in program oversight, in order to identify and address distribution bottlenecks.[32]

The program's rapid expansion of coverage to other states was not accompanied by promotion of its official channels for community oversight (*contraloría social*). While program documents refer to the goal of promoting official social oversight committees, grievance mechanisms, and information request systems, in Guerrero there is no field-based evidence that the program encouraged these reforms in practice.[33] An official program evaluation describes in detail the formal processes for operating the social oversight committees but concludes that they were still "incipient" in 2022—citing only one in existence. The evaluation recognized that social oversight programs are "extremely necessary" in order to "provide community and social

monitoring of the use of the program support and also to provide information to the population that does not benefit from the program, who might question why some producers benefit while others do not." According to the evaluation, "since [participating in government-sponsored social oversight] is not obligatory for the beneficiaries, more promotion is needed to communicate the importance of strengthening the operation of the program at the territorial level. This would permit greater transparency, would help to monitor delivery of the support to the actual target population, and would verify that the producers make good use of the input." The report finds: "there is no strategy nor incentives to increase [producers'] participation."[34]

Both the official SADER program evaluation and the Guerrero peasant movement oversight found that Fertilizer for Welfare distributed chemical fertilizers with a "one-size-fits-all" approach. At least one state government agriculture official recognized negative effects of chemical fertilizer, noting the "aggressiveness" of ammonium sulfate in particular and noting a shift to urea after 2020.[35] In practice, availability from the government's revitalized large industrial provider determined the specific combination of fertilizers delivered to farmers.

Back in Guerrero, the *Coordinadora* adapted to SADER's lack of responsiveness to its proposals for improving the Fertilizer for Welfare Program by engaging with other agricultural programs, gaining a modest degree of traction. The Sowing Life program began to extend its coverage to new regions of the state, listening to *ejido* commissioners. SADER's national crop purchasing program began to locate procurement centers in areas of surplus production in the state, as the *Coordinadora* had proposed. The agroecological technical accompaniment initiative within the Production for Welfare program collaborated with *ejido* commissioners, increasing its field presence to reach half the state's municipalities, part of a national expansion process that involved 1,200 agroecology promoters nationwide by 2023. Through more than 4,200 field schools, this process accompanied 129,000 producers in an agroecological transition, including training in the local self-production of bioinputs, sometimes called "community biofertilizers" (Robles Berlanga 2023, 331).

In Guerrero, the *Coordinadora* developed another proposal to reorient the Fertilizer for Welfare Program to rationalize the use of chemical inputs, combined with gradual introduction of agroecological inputs, cultivation and soil management practices and inputs. They called their alternative policy proposal *Fertimas* (the name suggests "more than fertilizer"). Its goal is soil regeneration and reduced dependence on chemical fertilizers. Its key elements for promoting agroecological transitions include: soil studies, place-specific chemical fertilizer packages determined by the soil studies (targeted to producers without eroded and weak soils, where regeneration is needed), an agroecological input package (by producer request, of a value equivalent to the chemical fertilizer package), improved seeds (of national and native

origin), community biofactories for agroecological inputs (produced by experienced campesino organizations),[36] all supported by sustained, agroecological technical accompaniment, trained in the participatory "farmer-to-farmer" method ("*campesino a campesino*").[37] This approach is consistent with – and predated – the government's scale-up of its agroecological training and accompaniment via the Production for Welfare program. Yet from the point of view of peasant movement advocates in Guerrero, government support for agroecological approaches in the state continued to be small-scale, especially compared to the large-scale distribution of free chemical fertilizer.

Statewide agrarian movement-building and beyond

The Guerrero *Coordinadora's* agenda sought to go beyond local problem-solving, calling for changes in existing government programs while broadening the reach of organized farmer representation and voice. At the end of 2021, it convened Guerrero's second statewide *Campesino* Convention, bringing together more than 1,400 farmers, including elected commissioners from 650 of the 1,255 *ejidos* and agrarian communities in the state – as well as participants from 12 other states (CCECG 2022). In contrast to the conventional practice with large farmer organization gatherings in Mexico, this statewide convening received no government funding, apart from a small-town municipal government that hosted and provided facilities. The convention developed a statewide, pro-peasant policy agenda that proposed a "new agrarianism."

The Guerrero convention's organizing model was replicated in more than a dozen other states, building to a National *Agrarista* Convention in 2023. Their adoption of the historic Mexican political term *agrarista* recognizes the activists who risked their lives to carry out large-scale agrarian reform in the early 20th century.[38] Remarkably, around 5000 ejido leaders from 23 states covered their own costs to travel across the country for the day-long rally – too many for organizers to keep track of.

The convention's national *Agrarista* Manifesto called for strengthening agrarian law and institutions (including gender equity, for land titles to be considered family property), recognition of indigenous rights, participatory democracy, peasant movement oversight, support for social enterprises, sustainable natural resource management and building "territories of peace" in zones overrun by crime. While the participants sought recognition and commitment from senior federal officials, asserting their alignment with the governing Fourth Transformation agenda, they also proposed a different approach to rural governance: "government with the people, from the people, and for the people."[39]

Following the 2024 election, a broader array of campesino and indigenous organizations made a comprehensive set of proposals to the incoming

president, including the creation of a new, parallel modality for fertilizer distribution that would support biofertilizers with at least 30% of the program budget (Del Campo 0000, 21). Without a more pluralistic approach to fertilizer subsidies, Mexican farmers who are committed to agroecological practices – especially the 46,000 who are certified organic – will continue to be excluded from the program.[40]

Incoming officials in the new government indicate that public funding or provision of bio-inputs by the Fertilizer for Welfare program would require consistent standards, which do not currently exist. In this view, official standards would enable the scaling up of production and marketing of bio-inputs, otherwise their production may be limited to household or community levels. However, the Production for Welfare and Sowing Life programs, which are also projected to continue under the new government, represent an alternative approach: they are scaling up access to bio-inputs based on expanding and strengthening on-farm community production, learning by doing. Because these programs focus on training and investment in local production capacity rather than the government directly buying and distributing bio-inputs, this alternative approach would not require waiting for the design and implementation of official standards. Because of the growth trajectory of agroecological elements of those two large national programs toward the end of the outgoing government in 2024, there is substantial room for expansion and consolidation of community bio-input production to include a larger share of participating producers.

Discussion

The Guerrero farmer movement's experience with oversight of a large-scale government fertilizer program spotlights the potential tensions between policies that seek food self-sufficiency and policies that seek to expand uptake of sustainable agricultural practices. Conventional and alternative agricultural policies both coexisted and competed during the Fourth Transformation government. Analysts are likely to differ over whether the scaled-up policy emphasis on agroecological approaches added up to what advocates called a "big bang" (Toledo 2022). On the one hand, it was unprecedented for the government to carry out several relevant national programs and policies with agroecological elements that reached large numbers of smallholders – scaling up significantly in 2023 and 2024. On the other hand, the free chemical fertilizer program reached many *more* smallholders – and also scaled up during the same period. In addition, the government put its gradual ban on glyphosate on pause, while insider policy proposals to tighten regulation of highly toxic pesticides stalled. Future public disclosure of SADER's disaggregated budget allocations will allow analysts to compare the funding trends for

the government's conventional vs. alternative programs, which will indicate their relative priorities for policymakers.

Meanwhile, the weak enabling policy environment for collaborative governance limited farmer movement capacity for advocacy. Only a few senior policymakers were receptive to policy proposals from autonomous farmer organizations. More official openness to collaborative farmer oversight could have contributed to addressing operational issues that reduced the program's contribution to production and productivity: major persistent delays in delivery and reduced amounts per producer. According to the official impact evaluation, most beneficiaries received fertilizer too late in the season for maximum impact and in amounts only sufficient for one hectare.

This experience underscores the relevance of analyzing agricultural policy transitions by taking into account competing actors and strategies both inside and outside the state, following their actions at multiple levels. From below, in Guerrero, grassroots agroecology advocates responded to their constituents' inherited dependence on conventional fertilizer by advocating for more government responsiveness, while also striving to create space within official programs to enable producers to access biofertilizers. Yet these bottom-up proposals did not tangibly influence the national policy to subsidize chemical fertilizer. From above, within the government, senior pro-agroecology policymakers won some debates and lost others. In spite of constraints and setbacks in the short term, both insider and outsider advocates prepared to continue to pursue their vision of an "agroecological revolution" in the medium term.

On balance, the Guerrero experience indicates that terms like "big bang" and "agroecological revolution" appear to overstate the degree of tangible policy change so far, yet elements within the government did launch a major transition. Mexico now faces the second term of an elected government committed to supporting smallholder farming, both to reduce poverty and to enable national food self-sufficiency. In this context, the policy space and advocacy capacity for scaling and sustaining government support for agroecological farming remain uncertain.

Notes

1. The authors recognize and thank the participants in the peasant oversight of the Fertilizer for Wellbeing Program. They monitored official information from the communities, engaged with government officials, participated in evaluation and planning meetings, mobilized to make themselves heard, and disseminated results in the media – all actions promoted by the Guerrero Network of Ejido Commissioners and its advisory team since 2020. Thanks also to Megan DeTura, a graduate of the master's program at American University's School of International Service, for data analysis and documentation of the monitoring process. Thanks for comments on previous drafts of this study from Diego de la Mora, director of Fundar and Tim Wise of the Institute for Agriculture and Trade Policy. The authors are solely responsible for the interpretation that follows.

The case study section of this article substantially revises sections published in Fox and García Jiménez (2023).

2. This tension is widely debated in Africa, where international actors promote increased smallholder use of chemical fertilizer. For environmental and social critiques, see the work of the Alliance for Food Sovereignty in Africa, www.asfafrica.org. In addition, both critics and advocates of government funding of more intensive use of chemical fertilizer in Africa often refer to corruption and political biases as major, widely-recognized problems that resonate with Mexican experiences discussed here (for Zambian examples, see Swanepoel 2024; World Bank 2021). Yet in spite of the systemic nature of these problems, little published research documents the specific mechanisms of fertilizer-related corruption or lessons from anti-corruption strategies. For an exception, see the experience of the Peasant Farmers Association of Ghana in Halloran and Stephenson (2022). For an example of a Zambian farmer anti-corruption protest, see *Lusaka Times* (2022). Thanks to Moses Ngulube for the reference.
3. This experience differs from the two other largest-scale experiences with pro-agroecology policies in Latin America. In Cuba, economic crisis led to widespread uptake of agroecological farming, though conventional policy ideas persisted (e.g., Nelson et al. 2009). In Brazil under the Workers' Party government, national policy supported peasant agriculture and agroecological approaches – but only as enclaves under the persistent hegemony of policies that favored conventional, large-scale industrial agriculture (e.g., Van de Berg et al. 2022). Those policy reforms turned out to be vulnerable to rollback when the government changed (Niederle et al. 2023). Overall, in Latin America, "changes in policies have by and large been marginal" (Mier y Terán Giménez Cacho et al. 2018, 658).
4. This shift followed years of evidence-based advocacy to reduce government funding bias in favor of large growers, notably the *Subsidios al Campo* public information platform (no longer updated). See http://subsidiosalcampo.org.mx/ and Cejudo (2012).
5. On Mexico's Procampo farm subsidy program, see Fox and Haight (2010).
6. Independent researchers differ over the agroecological impacts of Sowing Life, including whether it responded to early concerns about unintended consequences. For example, see Warman, Iván Zuñiga, and Cervera (2021). Official evaluations do not address the program's environmental dimensions (CONEVAL 2024).
7. For policy context related to highly toxic pesticides in Mexico, see Bejarano González (2017)
8. For analysis of the early years of Guerrero peasant movement organizers' use of public information access, see Méndez Lara (2009) and Fox, García Jiménez, and Haight (2009). In 2024, the outgoing president proposed the eliminatation of the social policy evaluation agency and the information access agency.
9. The sustainability transitions literature deploys a different kind of multi-level perspective, understood in terms of the "socio-technical landscape" (Anderson et al. 2019, 3).
10. See Redclift (1983) and Felstehausen and Díaz Cisneros (1985). Plan Puebla was co-led by CIMMYT and the Chapingo University Postgraduate School, with support from the governor. Though CIMMYT led the Green Revolution with hybrid wheat seeds for irrigated farms, its Plan Puebla approach emphasized fertilizers and credit more than hybrid seeds – in rainfed corn areas with below-average drought risk. Therefore, its productivity increases were not generalizable to most Mexican rainfed corn regions. Only 1% of Plan Puebla participants used hybrid corn seed (Redclift 1983, 557).
11. Though structural adjustment policies dismantled much of the mid-century regime of state intervention in agriculture, new forms of intervention kept the state deeply involved in agriculture and rural society (Fox 1995; Fox and Haight 2010).

12. See Méndez Lara (2012). Tests of the program's fertilizer quality found that 40% was either adulterated or false (Méndez Lara 2014). On rural municipal social funds, see Garcia Jimenez (2019b).
13. See García Jiménez (2019a), MCPASXXI (2019), and Núñez Membrillo (2021).
14. Activists in Guerrero could call on deeply embedded memories of past waves of social protest and pro-democracy movements that had swept the state every decade or two for a century, each time facing reprisals from corrupt political machines and armed actors. See Bartra (1996) and Fox, García Jiménez, and Haight (2009).
15. President López Obrador launched the new federal program on February 2, 2019, stating: "Guerrero will be the only state with free fertilizer, it's just that we need to try for it to be organic fertilizer, fertilizer that doesn't degrade the soil, to care for the environment" (cited in García Jiménez 2023, 16–17).
16. The reported value of missing funds reached more than US$879 million (Castillo García 2023).
17. For official agrarian data, see http://www.ran.gob.mx/ran/index.php/sistemas-de-consulta/estadistica-agraria. *Ejidos* and agrarian communities are widely seen to have major problems with governance and representation, in spite of their numerous institutional mechanisms to encourage their accountability to titleholders such as vesting authority in public assemblies, elected rotating leadership (now with gender parity), as well as elected internal oversight committees. However, in recent decades agrarian research has addressed laws and census data more than broad trends in how these agrarian governance institutions function in practice. For a state-level analysis of *ejido* responses to the national reform of agrarian law, see Torres Mazuera (2014). On irregular *ejido* land markets, see Torres Mazuera and Appendini (2020). On the official *ejido* governance structure, see CEDRSSA (2021). For an analysis of provisions of the 1992 agrarian law, see for example, Pérez Castañeda and MacKinlay (2015). On *ejido* censuses over time, see Romero Navarrete (2015).
18. See: MCPASXXI (2019), García Jiménez (2019a).
19. This new term appropriated and transformed an official name for community-based monitoring of public works projects—'*contraloría social*' – which the government promoted back to the early 1990s and has weakened since then. The term "community oversight" is also used in Guerrero (García Jiménez and Barreda (2010). For a multilingual and cross-cultural discussion of different understandings of "accountability keywords," including "social oversight" in Spanish, see https://accountabilityresearch.org/accountability-keywords/.
20. For example, the federal audit of the program in 2020 found "lack of mechanisms of control, supervision, and monitoring to assure that the fertilizer was delivered to the beneficiaries," as well as large volumes of fertilizer that was either not delivered or delivered to beneficiaries not on the roster (ASF 2021, 8). The following year, the same federal audit institution founder fewer serious problems – possibly related to the more intensive "peasant oversight," though it did not find consistent criteria for meeting the program goal of targeting "high and very high marginality" localities (ASF 2022, 6). For a rare independent study of institutional corruption mechanisms in the agricultural sector, focused on opaque programs eliminated by the 2018–2024 government, see Delalande Vincenti (2019). For an analysis of corruption risks in the AMLO government's agroforestry program, see Delalande Vincenti (2020).
21. In the name of anti-corruption and bypassing intermediaries, one of the government's first decisions was to eliminate its funding for peasant organizations – independently of whether or not they were corrupt. The government's policy strategy focused exclusively on delivering subsidies to individuals, rather than investing in public goods for

agriculture or supporting self-managed/producer-run social enterprises. Many welcomed the weakening of traditional rural political machines, but the same policy decision also cut off farmers' autonomous social enterprises that had managed to gain modest degrees of access to government support off and on over the years. See Núñez Membrillo (2021).

22. For numerous perspectives on that program's innovations, see Bartra et al. (2022). See also Toledo (2023a, 2023b). On Mexico's national grain self-sufficiency strategy, see Wise (2023b).
23. See Toledo's comments to Enciso (2020). For subsequent observations, see Toledo (2023a, 2023b).
24. Note: Large year-on-year changes in the number of Guerrero producers registered as indigenous raise questions about data quality and consistency. For additional official data on fertilizer program coverage in other states, see SADER (2023a). Women farmers are also increasingly well-represented in the *Producción para el Bienestar* crop payment program, with 34% of recipients, up from 20% (Subsecretaria de Autosuficiencia Alimentaria 2023).
25. On women and *ejidos*, see Torres Mazuera (2023). Official National Agrarian Registry data also show that women also represent 21% of elected leadership positions, though based on only one third of communities reporting (17% of leadership in Guerrero). See http://www.ran.gob.mx/ran/index.php/sistemas-de-consulta/estadistica-agraria./estadistica-con-perspectiva-de-genero (data reported as of June, 2024) Though recent gender parity requirements have led to increased female representation in elected *ejido* leadership positions, very few women hold the presidency. In Guerrero, official data report that women were presidents of only 16 out of the state's 1255 *ejidos* and communities. This likely overstates female representative in elected leadership because many ejidos did not report gender leadership data to the National Agrarian Registry.
26. See: https://www.gob.mx/agricultura/documentos/programa-fertilizantes-para-el-bienestar-2022-guerrero.
27. SADER (2023a).
28. Soil studies that inform the alignment of fertilizer doses with soil conditions can drive dramatic productivity increases, as shown by an innovative pilot by the small and medium-sized grain farmers in Mexico's National Association of Marketing Enterprises (ANEC) (Rudiño 2011). The formulas of the government's fertilizer distributed are 46-00-00 and 14-42-00.
29. Though the evaluation is nominally public (as of December 2024), its release was not announced by CONEVAL or SADER, the document is not readily accessible from their main portals and CONEVAL dropped it from its list of current evaluations. See: https://www.coneval.org.mx/Medicion/MP/Documents/contribucion_estrategias_pobreza/Pobreza_jornaleros_agricolas_Mexico.pdf.
30. This was 18% more output than the control group – though the evaluators recognize that this statistical finding is "not robust" (SADER/INCA RURAL 2024, 219).
31. The evaluation also found that the program's administrative data did not adequately report ethnicity, since SADER's official figure was only 4.2% (ibid 125).
32. The 2024 evaluation called briefly for the program "to continue strengthening the spaces for social oversight and community monitoring" (SADER/INCA RURAL 2024, 266). However, the evaluation's agenda did not address whether any social oversight processes exist in practice.
33. SADER (2023b).

34. SADER/INCA RURAL (2022, 14; 23; 144; 185). The evaluation's concern about the lack of uptake of the official community oversight processes did not recognize the extensive of independent community oversight efforts in Guerrero.
35. According to this official, "If one takes into account that 69% of the state's soils are of low productivity and resilience (regosols y leptosols), the application to these soils [of chemical fertilizer], above all Ammonium Sulfate, one of the fertilizers with the highest acidity and aggressiveness toward the life of the soil, has provoked negative processes of environmental degradation, nutritional imbalances and greater susceptibility to the attack of pathogens and farmer dependency . . . [after 2020] The Fertilizer for Welfare program aptly substituted Urea, a fertilizer less aggressive for the soil" (Peto Calderón 2022, 319).
36. In Guerrero, agroecology promoters define "biofactories" as community enterprises that produce inputs to restore soils and conserve biodiversity by transforming organic or ecological agricultural material available in the community, sometimes considered waste (Cortes Bacilio 2022, 77).
37. On this agroecological pedagogy and movement-building strategy, see Holt-Giménez (2006)
38. It is no coincidence that this national gathering was held on the 104th anniversary of the government assassination of iconic revolutionary Emiliano Zapata. The autonomous Mexican peasant movement has long commemorated April 10 to recall both the hopes raised by Zapata's program of "land and freedom," and their sense of frustration with the broken promises of post-revolutionary governments.
39. 2023; Toledo (2023a).
40. These mainly small and medium-sized certified organic producers farm 330,000 hectares, generating US$400 million in annual sales (SADER 2020).

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