International Journal of Commerce and Economics
www.commercejournal.in
E-ISSN: 2664-7540
Received: 19-09-2026, Accepted: 19-10-2026, Published: 03-11-2026
Volume 8, Issue 4, 2026, Page No. 18-22

Impact of GST on the agriculture sector: A comparative study of GST 1.0 and GST 2.0 in India

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DOI: https://doi.org/10.66856/ijce.2026.8.4.8069

Abstract
The Goods and Services Tax (GST), introduced in India on 1 July 2017, replaced excise duty, service tax, value-added tax (VAT), entry tax and other levies with a single, destination-based indirect tax. Agriculture is largely exempt from GST, but the sector is affected indirectly through taxes on inputs, machinery, processing and services. This paper compares the GST regime that applied to agriculture from 2017 to September 2025 (GST 1.0) with the rate rationalisation recommended by the 56th GST Council meeting on 3 September 2025 and effective from 22 September 2025 (popularly called GST 2.0). Using official notifications, Council documents, earlier academic work and early market evidence, it assesses effects on farm machinery, fertiliser inputs, bio-inputs, dairy, supply chains and compliance. The reform moved most farm machinery, tractor parts, irrigation equipment, bio-pesticides and key fertiliser raw materials to the 5 percent rate and cut tax on several dairy products, and tractor sales rose sharply in the months that followed. However, the benefit to farmers depends on pass-through by manufacturers, access to credit, input-use practices and digital readiness. The paper concludes that GST 2.0 is a clear step toward lowering farm costs, and that targeted measures on compliance, awareness and sustainable input use are needed for the gains to reach small and marginal farmers.

Keywords: GST 1.0, GST 2.0, agriculture, agricultural inputs, mechanisation, dairy, sustainable farming, compliance

Introduction
Agriculture is central to the Indian economy through its contribution to national income, food security and livelihoods. Periodic Labour Force Survey estimates indicate that agriculture still employs about 43 percent of the workforce [1], and the Economic Survey 2025–26 estimates that agriculture and allied activities grew by about 3.1 percent in 2025–26 [2].

Before 2017, agricultural supply chains faced a patchwork of central and state levies, including excise duty, service tax, VAT, octroi, purchase tax and entry taxes. These taxes cascaded through the chain, raised production and logistics costs and fragmented the national market.

GST was introduced on 1 July 2017, with goods rates first notified in June 2017 [3], to create a unified market, remove cascading through input tax credit (ITC) and improve compliance. Most unprocessed agricultural produce is exempt, but fertilisers, pesticides, machinery, irrigation equipment, storage, transport and processing are taxed, so GST still shapes farm costs [4].

On 3 September 2025 the 56th GST Council recommended a major rate rationalisation, effective from 22 September 2025 [5, 6]. The four-slab structure (5, 12, 18 and 28 percent) was replaced by two main rates, a 5 percent merit rate and an 18 percent standard rate, with a special 40 percent rate for a few sin and luxury goods [5]. Many farm-related goods moved to 5 percent. "GST 2.0" is a popular label for this reform, not an official designation. This paper uses it, together with "GST 1.0" for the period from July 2017 to 21 September 2025, to compare the two regimes for agriculture.

Objectives of the Study
The main objectives of this study are:
1. To analyse the concept and implementation of GST in India.
2. To examine the impact of GST on agricultural inputs and outputs.
3. To compare the features and outcomes of GST 1.0 and GST 2.0.
4. To evaluate the positive and negative effects of GST on farmers and agribusiness.
5. To suggest policy recommendations for improving GST implementation in the agricultural sector.

Research Methodology
This is a descriptive, secondary-data study. Rates and reform measures are taken from primary official sources: The Press Information Bureau releases on the 56th GST Council meeting, the Council's FAQs and CBIC rate notifications [5, 6, 7, 8]. Evidence on the GST 1.0 period is drawn from peer-reviewed and policy research [4, 9], and early post-reform outcomes from industry and credit-rating analysis [10, 11]. Information is current to October 2026.

Limitations: GST 2.0 had been in force for only about thirteen months at the time of writing. The study does not use farm-level price data, so it cannot measure how much of each tax cut reached farmers. Sales figures reflect several concurrent drivers besides GST, including monsoon, support prices and credit, and the conclusions are therefore indicative, not causal.

Overview of GST in India
GST is a comprehensive, destination-based indirect tax on the supply of goods and services. Its main objectives are:
- Simplification of the tax structure
- Elimination of cascading taxes
- Improvement in tax compliance
- Creation of a unified national market
- Promotion of economic growth

GST has three components

1. CGST (Central GST), collected by the Centre on intra-state supplies.
2. SGST (State GST), collected by states on intra-state supplies.
3. IGST (Integrated GST), levied by the Centre on inter-state supplies and imports and shared with the destination state.
4. The Input Tax Credit (ITC) mechanism lets registered businesses set off tax paid on inputs against tax on outputs, which removes cascading. ITC is not available where the output is exempt, and this explains why governments often prefer a low positive rate to a full exemption for goods such as farm machinery [8].

GST and the Agriculture Sector

Agriculture enjoys a partial exemption. Most unprocessed produce, such as fruits, vegetables, cereals and fresh milk, is exempt, and seeds are also largely outside the tax net [9]. The sector is nevertheless exposed through taxes on:

- Agricultural machinery, tractors and spare parts
- Fertilisers, agrochemicals and their raw materials
- Irrigation equipment
- Storage and transport services
- Food and dairy processing

Farmers do not pay GST on their produce, but the tax on inputs and services affects production costs and market prices. Where inputs are taxed at a higher rate than the output (an inverted duty structure), credit accumulates with manufacturers and raises costs, and several of the 2025 changes address this problem [8, 12].

Comparative Impact of GST 2.0 on Agriculture Compared with GST 1.0

The 2025 reforms addressed several limitations of the GST 1.0 period. Each area below sets out the earlier position, the change, the benefit and the remaining challenge.

1. Reduction in Tax on Agricultural Machinery

Situation under GST 1.0: Tractors, harvesting and threshing machines, soil-preparation machinery, composting machines, sprayers and drip and sprinkler irrigation systems were taxed at 12 percent, and many tractor parts, tyres and hydraulic pumps at 18 percent [5, 7]. Early analysis warned that taxing previously exempt equipment could slow mechanisation and raise cultivation costs, particularly for small farms [4, 9].

Changes under GST 2.0: These categories now attract 5 percent, including tractors (other than road tractors above 1800 cc), harvesting and threshing machinery, balers, composting machines, sprinklers, drip irrigation and sprayers, and tractor parts, tyres and hydraulic pumps [5, 6]. The Government's own illustrative estimates show savings of about ₹41,000 on a 35 HP tractor and ₹63,000 on a 75 HP tractor, and ₹1.875 lakh on a combine harvester [7]. Machinery was not fully exempted, because exemption would deny manufacturers input tax credit [8].

Benefit compared with GST 1.0: Lower prices improve the affordability of mechanisation, raise productivity and reduce reliance on manual labour. Early market data are consistent with this. Tractor sales rose about 45 percent year on year in September 2025, and CRISIL attributed improved affordability, first-time buying and replacement demand partly to the cut [10, 11]. Industry bodies reported FY2025–26 sales above one million units, up roughly 18–19 percent, with FADA recording 10.50 lakh retail units and the Tractor and Mechanization Association 11.60 lakh units [11]. The two series differ in definition (retail versus wholesale) and also reflect higher support prices, good monsoon and easier credit.

Challenge: A 5 percent rate cuts the tax but not the purchase price of a machine that a small farmer must still finance. Access to credit, custom-hiring centres and the pass-through of the tax cut by manufacturers and dealers therefore remain decisive.

2. Reduction in Tax on Fertiliser Inputs

Situation under GST 1.0: Fertilisers were taxed at 5 percent, but raw materials such as ammonia, sulphuric acid and nitric acid were taxed at 18 percent [5]. This inverted structure left manufacturers with accumulated credit and raised production costs.

Changes under GST 2.0: The three raw materials are now taxed at 5 percent, as are micronutrients registered under the Fertiliser Control Order (previously 12 percent) [5]. Finished fertilisers remain at 5 percent.

Benefit compared with GST 1.0: Aligning input and output rates removes the inverted duty problem and lowers manufacturing cost. Because urea and several other fertilisers are sold at government-controlled maximum retail prices or under subsidy schemes, part of the saving is likely to accrue to the subsidy bill and manufacturers, not to farm-gate prices (an analytical inference that needs empirical testing).

Challenge: Farmers gain only if manufacturers and the subsidy framework pass the savings on, and no systematic price data are yet available to verify this.

3. Concern Arising from Lower Fertiliser Costs, and Measures to Address It

Lower fertiliser costs help farmers, but cheaper nitrogen-heavy fertilisers can encourage excessive and unbalanced use. Overuse leads to soil nutrient imbalance, declining soil fertility, water pollution from runoff and residue-related health risks. The following measures can prevent the tax relief from worsening these problems:

1. **Balanced fertiliser use:** Promote soil testing and nutrient application based on crop need.
2. **Organic and bio-fertilisers:** Support their use through awareness, availability and, where justified, tax or subsidy incentives.
3. **Farmer awareness and training:** Use extension services to teach the right quantity and timing of application.
4. **Soil Health Card programme:** Use soil health data to guide scientific fertiliser use.
5. **Integrated nutrient management:** Combine chemical fertilisers, organic manure and bio-fertilisers to maintain soil health.

4. Promotion of Sustainable Agricultural Inputs

Situation under GST 1.0. Bio-pesticides, including neem-based products, and micronutrients were taxed at 12 percent, while plant-protection chemicals were in the 18 percent slab

[4, 5, 9]. This did not favour eco-friendly inputs over conventional chemicals.

Changes under GST 2.0: Twelve bio-pesticides, including neem-based pesticides, and several micronutrients moved from 12 to 5 percent [5, 7].

Benefit compared with GST 1.0: The lower rate reduces the price of these inputs and supports adoption of lower-chemical practices. This emphasis on sustainable inputs was absent in GST 1.0. This paper could not confirm rate changes for bio-fertilisers and organic manure in the official documents reviewed, so they are not treated as part of the reform.

Challenge: Adoption remains limited by:
1. Low awareness of the benefits of bio-fertilisers and bio-pesticides.
2. Limited availability of eco-friendly inputs in rural markets, where chemical inputs are easier to obtain.
3. Traditional practices and familiarity with chemical inputs.
4. Lack of training and extension services on sustainable techniques.

5. Relief to Dairy and Allied Sectors

Situation under GST 1.0. Fresh milk was exempt and UHT milk and pre-packaged paneer were taxed at 5 percent. Butter, ghee, cheese, condensed milk and milk-containing beverages were taxed at 12 percent [5]. Early research expected the taxation of processed dairy to shift demand toward unorganised suppliers [4].

Changes under GST 2.0: UHT milk and pre-packaged, labelled paneer (chena) became nil-rated. Butter, ghee, butter oil, dairy spreads, cheese, condensed milk and milk-containing beverages moved from 12 to 5 percent [5, 8]. The rate on milk cans also fell from 12 to 5 percent [7].

Benefit compared with GST 1.0: Lower rates raise the competitiveness of organised dairy and can increase demand for farmers' milk, with potential gains for incomes and rural employment. Registered dairy enterprises can also claim ITC on machinery, packaging and transport, reach organised retail and gain credibility with lenders.

Challenge: Many small dairy enterprises and rural producers hesitate to register because of complex digital procedures, limited technical knowledge and fear of documentation. Nil-rated products also bring ITC reversal for supplies made from 22 September 2025, so firms need to understand the credit rules [8].

6. Improvement in Agricultural Supply Chain Efficiency

Situation under GST 1.0: GST removed state-border check-posts and entry taxes, which reduced transport delays for agricultural goods.

Changes under GST 2.0: The reform added trade-facilitation measures: 90 percent provisional refunds for exporters of zero-rated supplies and for firms with inverted duty structures (operational from 1 November 2025), and steps to operationalise the GST Appellate Tribunal [5, 12].

Benefit compared with GST 1.0: Faster refunds free working capital for processors and exporters of agricultural goods, and a functioning appellate system shortens dispute resolution.

Challenge: Small traders and rural businesses still struggle with digital documentation such as e-way bills.

7. Reduction in Compliance Burden

Situation under GST 1.0: Online registration, digital filing and documentation burdened small traders and agribusinesses in rural areas.

Changes under GST 2.0: An optional simplified registration scheme will grant registration within three working days to low-risk applicants and to those whose monthly output tax on supplies to registered persons is expected to stay within ₹2.5 lakh, and a simpler mechanism is planned for small e-commerce suppliers [12]. The registration threshold for goods was not changed [8]. The official documents reviewed do not describe a new return-filing procedure.

Benefit compared with GST 1.0: Faster registration lowers entry barriers for small agribusinesses, dairy units and farmer producer organisations.

Remaining challenge: Many rural traders still face digital literacy gaps and limited internet access.

Comparison Between GST 1.0 and GST 2.0

Aspect	Example products / inputs	GST 1.0 rate	GST 2.0 rate
Tractors	Tractors up to 1800 cc (road tractors above 1800 cc excluded)	12%	5%
Other agricultural machinery	Harvesting and threshing machines, balers, soil-preparation and composting machines, sprayers	12%	5%
Irrigation equipment	Drip irrigation systems and nozzles, sprinklers	12%	5%
Tractor parts	Tyres and tubes, hydraulic pumps, brakes, gearboxes, clutches, radiators	18%	5%
Fertiliser raw materials	Ammonia, sulphuric acid, nitric acid	18%	5%
Fertilisers	Urea, DAP, NPK	5%	5%
Micronutrients	Micronutrients registered under the Fertiliser Control Order	12%	5%
Bio-pesticides	Neem-based and other listed bio-pesticides	12%	5%
UHT milk and paneer	UHT milk; pre-packaged, labelled paneer/chena	5%	Nil
Dairy products	Butter, ghee, cheese, condensed milk, milk-based beverages	12%	5%
Dairy equipment	Milk cans (iron, steel, aluminium)	12%	5%

Note: GST 1.0 rates are those in force immediately before 22 September 2025; GST 2.0 rates apply from that date. **Source:** GST Council recommendations and CBIC Notification No. 09/2025–Central Tax (Rate) [5, 6]; Press Information Bureau [7].

The changes show a clear policy shift toward lowering farm input and machinery costs, while retaining a positive rate that preserves credit for manufacturers.

Overall Benefits of GST to Agriculture

1. **Unified agricultural market:** GST has helped create a single national market by removing state-level taxes and trade barriers, though many farmers are not yet aware of how to use the wider market.

2. **Logistics and supply chain efficiency:** Removal of check-posts and entry taxes has reduced transit time for perishables, although small traders can find e-way bills and digital records difficult.

3. **Transparency in the value chain:** Invoice-based transactions reduce evasion and improve accountability, but digital record-keeping adds compliance cost for small rural traders.

4. **Growth opportunities for agribusiness and food processing:** ITC and clearer procedures encourage investment in value addition. Multiple slabs on inputs, however, can still complicate cost management.

5. **Awareness and compliance gaps:** Many farmers and rural entrepreneurs lack awareness of exemptions and procedures, which reduces the direct benefit of the system.

Policy Recommendations

The 2025 reform has already met part of earlier recommendations on machinery, irrigation and fertiliser inputs [9]. The following measures would extend and secure its benefits:

1. **Monitor pass-through:** Publish periodic data on retail prices of tractors, machinery, fertiliser inputs and dairy products after rate cuts, so that tax savings reach farmers.

2. **Review remaining high-rate inputs:** Examine the rates on plant-protection chemicals, agro-processing machinery and storage equipment, which earlier research flagged as burdens [4], and clarify rates for bio-fertilisers and organic manure.

3. **Pair tax relief with credit:** Link lower machinery prices to affordable finance, custom-hiring centres and farmer producer organisations, so small farmers can use them.

4. **Simplify compliance for small agribusinesses:** Extend the simplified registration scheme to dairy producers, cooperatives and farmer producer organisations, with assisted filing [12].

5. **Encourage registration of dairy and processing enterprises:** so that they can claim ITC, improve market access and gain bank credit.

6. **Run awareness and training programmes:** on GST benefits, balanced and sustainable input use and digital compliance.

7. **Strengthen rural digital infrastructure and facilitation**: centres to support compliance and market access.

Conclusion

The move from GST 1.0 to GST 2.0 has lowered the tax on farm machinery, tractor parts, irrigation equipment, fertiliser raw materials, bio-pesticides and key dairy products, and removed an inverted duty problem in the fertiliser chain. Early evidence, notably record tractor sales in 2025–26, suggests that these cuts improved affordability, although other factors contributed. The new registration and refund measures further ease the operating environment for agribusiness.

Challenges remain. Small and marginal farmers face credit constraints, uneven pass-through of tax savings, limited awareness and weak digital access, and cheaper fertiliser could encourage overuse unless it is paired with soil-health and extension programmes. Rigorous, farm-level studies are needed as more post-reform data become available. With targeted support on credit, training, simplified compliance and price monitoring, GST can contribute more fully to modernising Indian agriculture and ensuring that small and marginal farmers share in the gains.

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