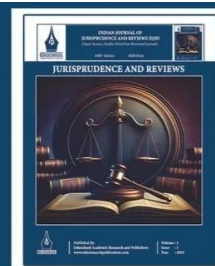




INDIAN JOURNAL OF JURISPRUDENCE AND REVIEWS (IJJR)

(Open Access, Double-Blind Peer Reviewed Journal)

ISSN Online: 3139-177X



Pesticide Residues And Food Safety Law In India: Overlapping Regulators

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Article Information

Received: 21st June 2026

Received in revised form: 20th July 2026

Accepted: 16th August 2026

Available online: 2nd September 2026

Volume: 2

Issue: 3

DOI: <https://doi.org/10.63090/IJJR/3139.177X.0020>

Abstract

Indian law regulates pesticides twice, and neither regulator is answerable for what the other does. The Insecticides Act 1968 governs registration, manufacture and sale through an agricultural ministry, while the Food Safety and Standards Act 2006 governs the residue that reaches the consumer through a health ministry. The two statutes share no common decision point, no shared evidentiary record and no obligation of mutual notification. This article examines the consequences of that separation for the setting of maximum residue limits, for surveillance, for enforcement against the seller of contaminated food, and for the consumer's remedy. It argues that the principal defect is not the absence of standards but the absence of a feedback path: residue data generated by the food safety regulator does not, as a matter of law, require the registering authority to revisit a registration, and the registering authority's approvals do not bind the residue standard setter. The article compares the Codex approach, in which the residue limit and the approved use are determined together, and examines the treatment of the precautionary principle in Indian environmental adjudication. It proposes a statutory duty of reference between the two regulators, a sunset period on registrations, a residue limit for every registered use, and a presumption operating against the seller where a sample exceeds the limit.

Keywords:- Pesticide Residues, Food Safety, Maximum Residue Limits, Insecticides Act, Regulatory Design, India

1. INTRODUCTION

A farmer in India buys a pesticide that a central authority has registered. He applies it to a crop at a dose recommended on the label. The crop is sold, the produce is sampled by a food safety officer, and the sample is found to contain a residue in excess of the permitted limit. Two regulators have acted on the same chemical, and neither is in a position to answer for the outcome. The registering authority approved the product and the use. The food safety authority set the limit. No provision of Indian law requires the second finding to travel back to the first.

This article is about that missing path. Its subject is not the adequacy of Indian pesticide standards taken one at a time, which has been examined at length elsewhere, but the relationship between the two statutory schemes that produce them. John (2026) describes the legal architecture of pesticide management in India as a compliance system, and the description is apt: the architecture is built to secure compliance with each regulator's requirements taken separately, and it contains no mechanism by which failure under one becomes evidence under the other.

The analysis proceeds in five stages. It sets out the two schemes and identifies the points at which they touch. It examines how maximum residue limits are set and what happens when a registered use has no corresponding limit. It considers surveillance and the evidentiary weight of the resulting data. It examines the enforcement position of the seller and the remedy of the consumer. It then proposes four changes, all of which are drafting changes rather than institutional reconstruction.

II. TWO STATUTES, TWO MINISTRIES

The Insecticides Act 1968 establishes a Central Insecticides Board and a Registration Committee, and makes the manufacture, sale, distribution and use of an insecticide conditional on registration and licensing. Registration attaches to a

product and its claimed uses. The scheme is administered within the agricultural portfolio, and its orientation is toward the availability and efficacy of crop protection inputs, with safety operating as a condition on availability.

The Food Safety and Standards Act 2006 established the Food Safety and Standards Authority of India. It repealed a series of earlier enactments, among them the Prevention of Food Adulteration Act 1954, and brought the regulation of food under a single authority for the first time. Its regulations on contaminants, toxins and residues, framed in 2011, prescribe tolerance limits for pesticide residues in specified food commodities. The scheme sits in the health portfolio. Its orientation is toward the safety of the article of food as consumed.

Reddy, Reddy and Mathur (2024), surveying pesticide use, regulation and policy in Indian agriculture, note that the two systems developed on separate timelines and were never harmonised at the point of drafting. The Pesticide Management Bill 2020, which was intended to replace the 1968 Act, retains the separation. It strengthens registration review and introduces provisions on compensation, but it does not create a statutory link to the food safety regulator.

The consequence is a category of regulatory silence. A pesticide may be registered for use on a crop for which no maximum residue limit has been notified. The residue is then unregulated in the sense that matters to the consumer, because the food safety officer has no standard against which to assess the sample, while the use remains lawful under the registration.

III. HOW THE RESIDUE LIMIT IS SET, AND AGAINST WHAT

A maximum residue limit is not a health standard in the ordinary sense. It is the residue expected to remain when the product is used in accordance with good agricultural practice, tested against a toxicological reference value to confirm that the expected dietary intake remains acceptable. Yamada (2017) sets out the reasoning in the Codex system and emphasises the point that matters here: the limit is derived from the approved use. The two determinations are parts of one exercise, and separating them destroys the logic of both.

Indian practice separates them. The registration decision fixes the approved use. The residue regulation fixes the limit. Where the two are made by different bodies at different times on different records, three failures follow. A registered use may have no limit, as noted above. A limit may exist for a use that is no longer registered, which produces enforcement against a residue that should not be present at all rather than one that is merely excessive. Most seriously, a limit may be set on the assumption of a supervised application regime that Indian conditions do not deliver.

Shetty and Sabitha (2009), analysing the economic and ecological externalities of pesticide use in India, document the gap between label instruction and field practice, including application above recommended dose, disregard of the pre harvest interval and mixing of products. Chaudhry (2022) reaches similar conclusions in an assessment of policy alternatives for environmental health. A residue standard predicated on good agricultural practice is, in these conditions, a standard predicated on a counterfactual.

IV. SURVEILLANCE AND THE EVIDENCE THAT GOES NOWHERE

India operates a monitoring programme for pesticide residues in food commodities, and food safety officers draw samples under the 2006 Act. The programme generates a substantial body of data on which commodities and which chemicals produce exceedances.

The legal difficulty is that the data has no addressee. Under the Insecticides Act the registering authority may review a registration, but no provision obliges it to do so when residue surveillance shows a pattern of exceedance for a registered product. Under the Food Safety and Standards Act the authority may revise a limit, but the revision does not disturb the registration that produced the residue. Evidence of failure accumulates in one system and cannot be pleaded in the other.

The endosulfan episode shows what happens when that path is absent. Aerial spraying on cashew plantations in Kasaragod district in Kerala over two decades was followed by reports of congenital anomalies and neurological disorders in the surrounding population. Embrandiri, Singh, Ibrahim and Khan (2011) reported the epidemiological findings from the affected area. Regulatory action did not come from the registering authority acting on that evidence. It came from the Supreme Court, which in *Democratic Youth Federation of India v. Union of India*, by an interim order made on 13 May 2011, prohibited the manufacture, sale and use of endosulfan throughout the country and directed a scientific study by a joint committee. A court supplied the feedback path that the statutes did not.

V. THE PRECAUTIONARY PRINCIPLE AND ITS REACH

Indian environmental jurisprudence has adopted the precautionary principle as part of domestic law. In *Vellore Citizens Welfare Forum v. Union of India*, (1996) 5 SCC 647, the Supreme Court held the principle and the polluter pays principle to be part of the law of the land, placing the onus on the developer or industrialist to show that an action is environmentally benign.

Applying that reasoning to registration would produce a scheme materially different from the present one. The onus at the point of registration would rest on the applicant to demonstrate that the proposed use will not produce residues in excess of an established limit under conditions of use that actually obtain, rather than under an assumed regime of supervised application. The onus at the point of review would shift once surveillance data disclosed a pattern of exceedance.

Indian registration practice has not moved in that direction, and the reason is partly structural. Registrations under the 1968 Act are granted without a general expiry, so the occasion for reconsideration arises only if someone creates it. Expert committees have periodically recommended the withdrawal of particular products, and the committee constituted in 2013 under the chairmanship of Anupam Verma reviewed a large set of pesticides banned or restricted elsewhere and reported in 2015 with recommendations for phased withdrawal of several of them. The recommendations proceeded chemical by chemical, which is the appropriate method for a review body and an inadequate substitute for a statutory review cycle.

De Schutter (2011), writing on agroecology and the right to food, makes the connected point that regulatory attention to residues addresses the endpoint of a system whose design determines the quantity of chemical applied. That observation

does not displace the case for residue regulation, but it explains why residue regulation alone tends to produce diminishing returns.

VI. ENFORCEMENT AGAINST THE SELLER AND THE CONSUMER'S REMEDY

Where a sample exceeds a prescribed limit, the food safety scheme treats the article as unsafe or substandard depending on the extent of the exceedance, and proceedings lie against the person in whose possession the article was found. That person is ordinarily a retailer or a wholesaler, and the residue was created by an agricultural operation several transactions earlier.

The result is a mismatch between liability and control. The retailer cannot test every consignment, has no relationship with the applicator, and in the ordinary case has no means of knowing what was sprayed. Prosecutions accordingly concentrate on a defendant who could not have prevented the contravention, which is a poor deterrent and an inefficient allocation of enforcement effort.

The Supreme Court has taken a strong view of food safety enforcement in a related context. In *Swami Achyutanand Tirth v. Union of India*, (2016) 9 SCC 699, concerned with adulterated and synthetic milk, the Court directed the strengthening of testing infrastructure and asked the Union to consider enhanced punishment. The direction is significant for the present argument because it treats the state's testing capacity as a component of the right rather than as an administrative detail.

The consumer's own remedy remains weak. A purchaser of contaminated produce has a claim under the Consumer Protection Act 2019, but must identify a seller, prove the defect in the article purchased and establish loss. Residue exposure is chronic and cumulative, and the harm it produces cannot ordinarily be traced to a single purchase. This is the classic case for a regulatory rather than a compensatory response, and it strengthens rather than weakens the argument for a functioning feedback path between the two regulators.

VII. SAMPLING, ANALYSIS AND THE EVIDENTIARY CHAIN

Residue enforcement stands or falls on the integrity of a sample. The 2006 Act prescribes a procedure in which a food safety officer draws a sample in the presence of a witness, divides it into parts, delivers one part to the person from whom it was taken and forwards another to a food analyst. The person aggrieved by the analyst's report may apply to have a part examined by a referral laboratory, whose report supersedes that of the analyst.

Three difficulties attend this procedure in residue cases specifically. The first is temporal. Residue levels in fresh produce decline with time, so a delay between sampling and analysis systematically favours the defendant, and a delay between the analyst's report and the referral examination compounds it. The procedure was designed with adulterants in mind, which do not degrade in the same way.

The second is analytical. Detecting a residue at the concentrations at which limits are expressed requires accredited instrumentation and validated methods for each analyte and matrix combination. A laboratory that is accredited for one pesticide in one commodity is not thereby competent for another. The statutory scheme treats laboratory notification as a general status, and it contains no requirement that the notification specify the analytes for which the laboratory is validated. A report from a laboratory not validated for the analyte in question is admissible in form and worthless in substance.

The third is the absence of an origin record. A sample drawn from a retail consignment establishes that a residue was present in that consignment. It cannot establish who applied the pesticide, on what date or at what dose, because no participant in the chain is required to record the source of what he sells. Enforcement therefore terminates at the first person in possession, which is the point made in the preceding section, and the terminating point is determined by the state of the records rather than by any judgment about responsibility.

The remedy for the first difficulty is a statutory timeline binding on the analyst and on the referral laboratory in residue cases. The remedy for the second is that notification of a laboratory should specify the scope of its accreditation and that a report outside that scope should be inadmissible. The remedy for the third is a requirement of traceability, discussed below.

VIII. RESIDUE STANDARDS AND INTERNATIONAL TRADE

Residue limits are not solely instruments of domestic health regulation. They function as conditions of market access, and Indian agricultural exports have repeatedly been affected by consignments rejected at destination for residues exceeding the importing jurisdiction's limits. The rejection of a consignment is a costly and highly visible event, and it generates a corrective response within the export supply chain that domestic surveillance does not generate within the domestic one.

The asymmetry deserves attention because it is instructive rather than merely regrettable. Exporters operate traceability systems, maintain records of application, and observe pre harvest intervals, because a purchaser at the far end of the chain requires it and because failure has an identifiable and immediate cost. The same crop grown for domestic consumption is subject to none of these disciplines. Two standards of practice therefore coexist within the same farming system, differentiated not by law but by the commercial consequences of failure.

Yamada (2017) explains the Codex framework within which international limits are set and harmonised. Its central feature is the one already noted: the limit is tied to a documented pattern of use. Where an exporter must demonstrate compliance with an importing country's limit, documentation of that use follows as a matter of commercial necessity, because the buyer will not accept the consignment without it. A domestic scheme requiring equivalent records, at least for produce entering organised wholesale markets, would import into the domestic chain the discipline the export chain already carries. Much of the sector keeps such records already. That is the practical form a traceability requirement should take.

IX. FOUR CHANGES

A statutory duty of reference should be created in both directions. Where surveillance data discloses exceedance of a prescribed limit for a registered product above a stated threshold, the food safety authority should be obliged to refer the matter

to the registering authority, and the registering authority should be obliged to conduct a review and to publish its reasons. Where a registration is granted, varied or cancelled, the registering authority should be obliged to notify the food safety authority so that the corresponding limit can be set, revised or withdrawn.

No use should be registered without a corresponding residue limit. The rule is simple to state and would close the category of regulatory silence identified above. Where a limit cannot be set because the data is insufficient, the appropriate response is to withhold the registration for that use rather than to grant it and leave the residue unregulated.

Registrations should carry a fixed term. A period of ten years, with renewal conditional on a review of accumulated surveillance and toxicological data, would convert reconsideration from an event that requires an initiator into a routine administrative step.

A statutory presumption should operate where a sample exceeds a prescribed limit. The presumption should run against the person who applied the pesticide or, where that person cannot be identified, against the first purchaser in the chain who maintained no record of source. Coupled with a requirement that wholesalers record the origin of consignments, this places the burden on the participant best placed to control the risk, which is the allocation that Vellore Citizens Welfare Forum contemplates.

X. CONCLUSION

The Indian pesticide residue problem is often described as a problem of standards or of laboratory capacity. Both descriptions are partly true, and neither identifies the structural defect. Two statutes regulate the same chemical for different purposes through different ministries, and the law provides no channel through which a finding under one becomes a reason for action under the other. Evidence accumulates in the food safety system and expires there.

John (2026) frames the Indian scheme as an architecture of compliance, and the frame is useful because it identifies what such an architecture omits. Compliance systems verify conformity with rules; they do not revise the rules when conformity fails to produce the intended result. The four changes proposed here are modest in drafting terms and would supply that missing function. Until they are made, the correction of a registration that produces excessive residues will continue to depend on litigation, as it did in the endosulfan proceedings, and a court will continue to perform an administrative function that a statute should have assigned.

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