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ABR Program Handbook

IPDM



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Introduction



The **Responsible Brazilian Cotton program (Programa Algodão Brasileiro Responsável – ABR)** is publishing a series of handbooks on how its new material topics relate to sustainability.

This edition focuses on Integrated Pest and Disease Management (IPDM), a set of practices that mix technical knowledge and land and nature stewardship.

Enjoy your reading!



What is integrated pest and disease management?





IPDM

It is a set of practices that protect crops in a smart way. By combining **monitoring**, **biological control**, **rational use of pesticides**, and **biotechnology**, IPDM aims to balance the production system and ensure that cotton grows in a healthy and sustainable way.

What are the advantages of IPDM?



More productivity:

It cuts down losses in cotton crops.

Lower costs:

It reduces the number of applications and expenditure on products.

Environmental protection: It avoids excess in the use of pesticides and preserves natural enemies and biodiversity.



Cotton pests and diseases

Boll weevil

It is considered the main cotton pest due to its great destructive potential. It punctures cotton squares, flowers, and bolls to feed and lay its eggs. Its larvae grow inside the fruit, damaging the fibers and reducing crop yield.



Did you know?

That together with research institutions, Abrapa annually promotes and publishes consolidated results on the effectiveness of insecticides to control boll weevils in order to analyze the main available products and recommend adequate application tools.

[Click here for the 2023/2024 crop year analysis.](#)



Whiteflies

They are sap-sucking insects that weaken the plant and can transmit viruses. While feeding, whiteflies release a substance that causes sooty mold on the leaves, hindering photosynthesis and increasing the risk of scorching from solar radiation.



Caterpillars (Spodoptera and Helicoverpa)

Caterpillars are aggressive pests that are difficult to control in cotton, potentially reducing productivity by up to 80%. These include the fall armyworm (*Spodoptera frugiperda*) and *Helicoverpa armigera*, which feed on various parts of the cotton plant. Genetic control with biotechnology helps to balance their population, serving as an important tool in Integrated Pest Management.

Brown stink bug

It is one of the main cotton pests, causing damage that compromises the lint's commercial value. Its attack creates wounds that facilitate the entry of fungi and bacteria, thus accelerating the deterioration of plants and fibers.





Ramularia leaf spot

The main disease affecting cotton farming in Brazil, Ramularia leaf spot causes white spots and defoliation, and it can significantly reduce yield as well as fiber quality, in addition to increasing management costs.



Did you know?

That together with other organizations Abrapa is part of the Brazilian Ramularia Network (Rede Ramulária Brasileira), which evaluates the effectiveness of fungicides to control the Ramularia leaf spot and shares knowledge on how it develops across different cotton-producing areas.

[Click here to learn more about the Brazilian Ramularia Network.](#)



Red spider mite

This is a common cotton pest, especially in warm and dry areas. This mite forms colonies on the underside of the leaves, which are protected by webs. Infestation causes reddish spots on the veins, which progress into discoloration and necrosis, reducing quality and yield. Balanced pesticide control helps lower the incidence of this mite.



Target leaf spot

This disease produces dark lesions on the leaves and can lead to premature defoliation. As they progress, they become target-shaped, hence the name of the disease. The target leaf spot develops primarily under high-humidity conditions (above 80%) and frequent rainfall; it is also favored by high-density crops with narrow spacing between plants.





Success stories

IPDM has been producing concrete results in terms of **reducing the use of chemicals** and promoting more balanced practices. The growing adoption of **biological inputs** has been an important advancement; they help control pests in a more sustainable way, preserving the soil's biodiversity and health.

SLC Agrícola

SLC has been increasingly expanding the use of biological pesticides after each crop year. In 2022/2023, 14% of applications were of natural products, while in 2023/2024 the rate went up to 16.7%; in Goiás, the Pamplona Farm – a pioneer in the establishment of on-farm biofactories – achieved a 20% rate. The company currently has 15 biofactories that produce fungi and bacteria used to fight soybean, corn, and cotton pests. In addition to helping reduce the use of chemicals, biological pesticides favor beneficial soil microorganisms and make nutrient absorption more effective.

Scheffer

The Scheffer Group has reduced the use of chemical products and increased the usage of biological alternatives to control pests and diseases. In the 2022/2023 crop season, the factory in Três Lagoas (Mato Grosso do Sul) reduced the amount of chemical ingredients in cotton by 38% compared to other production units. In 2022, the Group had already reduced this rate by 43%.



Abapa's Phytosanitary Program

The Program to Monitor and Control Boll Weevil and Other Cotton Pests, also known as Phyto Program, was established in 2004/2005 by the Bahia Cotton Farmers' Association (Associação Baiana dos Produtores de Algodão) – Abapa. The program organizes Bahia state's West and Southwest areas into 18 Regional Control Centers with dedicated technical teams. The initiative includes **constant monitoring, awareness campaigns, crop rotation, and support to research**. In 2022, together with Embrapa Territorial, Abapa launched the Monitora Oeste (West Monitoring) app, which sends alerts regarding diseases and pests such as ramularia, tropical rust, and boll weevil, and provides real-time information to local farmers.

[Click here and learn more about Abapa's Phytosanitary Program.](#)

Best Practices Manual for Mato Grosso Cotton

Developed by the Mato Grosso Cotton Institute (Instituto Mato-grossense do Algodão) – IMAmt, this manual is one of the **leading technical references for Brazil's cotton farming**. Currently in its fourth edition, it comprises updated recommendations on Integrated Pest Management, nutrition, irrigation, weed control, and yield sustainability. It offers cotton producers a complete guide to efficient, responsible farming.

[You can find the manual here.](#)





How does ABR manage IPDM?

IPDM is a priority topic, which proves its strategic relevance to Brazilian cotton farming. It is on **ABR's checklist**, which consists of requirements that need to be met by production units.

[Find the complete checklist here!](#)



8.7 – Does the farm destroy stubble to avoid the proliferation of pests and diseases across crops?

8.8 – Is the farm aware of the sanitary fallow period and does it follow the state defense agency's regulations during this period?

8.9 – When choosing seeds, does the farmer take pest and disease control into account? Is there a plan for the implementation of IPM for pests and diseases that cannot be genetically controlled?

8.10 – Does the farm prioritize the use of biological controls to handle its most frequently occurring pests and diseases when effective products are available?

8.11 – Does the farm monitor pests and diseases, especially the boll weevil, and are chemical applications supported by monitoring results? Does the farm participate in and contribute to state-level monitoring actions to reduce the incidence of boll weevils?

8.12 – Does the farm adopt an Integrated Pest Management (IPM) program to keep healthy crops, preserving beneficial insects and performing resistance management for transgenic varieties?

8.13 – Does the farm have a strategy to prioritize Integrated Pest and Disease Management practices to reduce reliance on chemical interventions? Is there a strategy/plan to reduce the use of highly hazardous pesticides?

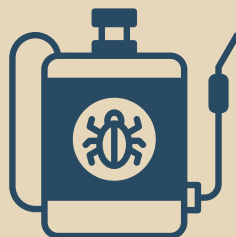




Did you know?

That in 2025 Abrapa developed a study with **470 ABR-certified farms** to investigate innovative farming practices and support greater sustainability in the coming years.

79,8%



of the farms studied already use biological products to control pests and diseases.



Control technologies and strategies

Learning about the most adequate control methods and how to correctly use them is crucial for an effective IPDM.





Cultural control

Farming practices that deter pest development, such as respecting the appropriate sowing season, planting within the recommended time-window, and complying with the regional sanitary fallow – a period when cotton should be absent from farmlands, which is mandatory by law in states like Mato Grosso.



Plant resistance

Using cotton varieties that are insect- or disease-resistant. These can be either plants obtained through conventional breeding or genetically modified (GM) ones (Bt).

Behavioral control

Using pheromones to attract and capture insects into traps, thus reducing pest populations and allowing monitoring of their presence in the crop.



Biological control

Encouraging the use of natural enemies and beneficial organisms. These include *Bacillus thuringiensis* (Bt)-based insecticides, as well as specific fungi and viruses to control caterpillars and whiteflies, in addition to releasing predators and parasitoids.

Rational chemical control

Using cotton-appropriate insecticides and acaricides; these are applied through spraying or seed treatment at the correct and targeted moments for the specific pest.



Collective action and local coordination



Wide-Area Management

Pest control is much more effective when performed collectively at a local level. Wide-Area Management considers the rural landscape as a whole and relies on the **collaboration between neighboring farms** to reduce or even completely deter pest movement. When farmers adopt joint strategies, they avoid control failures and achieve better results with IPDM, thus ensuring a stronger, more efficient approach.



Collaboration between neighboring farmers

This is crucial for effective Integrated Pest and Disease Management, as when there is **cooperation, results are collective**: reduced use of pesticides, greater control efficiency, lower costs, and better cotton fiber quality. In this sense, IPM goes **beyond individual practice**. It relies on the union of farmers, associations, and organizations to ensure more productive, sustainable, and competitive crops.

Sustainability and the future

IPDM should be employed sustainably, preserving biodiversity and ensuring that current tools remain effective for longer.





Preservation of natural enemies

One of its pillars is the **preservation of natural pest enemies**. Also known as beneficial organisms, natural enemies such as predators and parasitoids are not harmful to cotton; they act by **controlling pest populations** that affect crops. Keeping these agents alive and active reduces the reliance on chemical pesticides and strengthens the natural balance of crops.

Innovation in biotechnology and bioinputs

Bt technologies have already significantly reduced the use of chemicals and increased environmental gains. Now, the use of **bioinputs** has been growing rapidly, offering new biological solutions that strengthen IPDM, reduce costs, and contribute to more sustainable farming.

Shared responsibility

Farmers, consultants, the cotton industry, researchers, and governmental agents need to work together, in a **coordinated way**, to protect existing technologies, maintain cotton's economic viability, and prepare the land for future generations. Keeping cotton farming viable requires joint action.



Would you like to learn more...

About the ABR Program?

Go to ABR's website and learn about how the Responsible Brazilian Cotton program empowers cotton farming and farming sustainability.

<https://abrcotton.com/>

Integrated Pest and Disease Management

Learning more about IPDM starts with reliable information and trustworthy sources. Check out the list of key organizations to follow and keep yourself updated!



Embrapa

<https://www.embrapa.br/>

Mato Grosso Cotton Institute (IMAmt)

<https://imamt.org.br/>

Ministry of Agriculture, Livestock and Food Supply (MAPA)

<https://www.gov.br/agricultura/>

MT Foundation

<https://fundacaomt.com.br>

National Institute of Science and Technology in IPM (INCT MIP)

<http://inctmip.com.br>

Goiás Agricultural Institute (IGA)

<https://iga-go.com.br>

AMIPA Biofactory

<https://amipa.com.br/biofabrica-amipa>

Insecticide Resistance Action Committee

<https://www.irac-br.org>



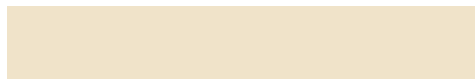
The ABR is the result of a joint effort that strengthens Brazil's reputation as a global benchmark for the production of responsible cotton. It embodies the commitment to best environmental, social, and economic practices, and it shows the world that our fiber is grown with social and environmental respect.

Throughout this decade, cotton farmers have been reaping the benefits of this journey: a reduction in environmental and labor liabilities and the improvement of their farms' reputation. The ABR also contributes to opening doors into demanding markets, generating more trust and competitiveness for the whole industry.





ABR Program: Planting the seed of a more sustainable future and cultivating the pride of being Brazilian.





ALGODÃO BRASILEIRO RESPONSÁVEL
RESPONSIBLE BRAZILIAN COTTON

