Establishing the integrated pest management (IPM) and pesticide reduction information system and their applications in Taiwan

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The integrated pest management (IPM) and pesticide reduction information system have been established and applied in agriculture to inquire information of the approved chemical and biological pesticides, friendly materials, and other alternative methods to manage the pest in crop preservation. They can be easily operated by agriculture personnel and experts through the access of mobile devices. The IPM and pesticide reduction information system supplies electronic plant protection and pest control calendars, which contains information on crop cultivation and pest management linked to the diagnosis data of pests (insects, pathogens, weeds) in crop production fields, assisting farmers to further understand the main symptoms or signs of infected crops. The system additionally helps farmers select the risk-reduced pesticides with low toxicity or shorter Pre-Harvest Intervals. On account of the establishment, farmers can inquire the use of biopesticides in crop protection, biopesticide licenses, and even the information of the nearby biopesticide vendors. The IPM and pesticide reduction information system could promote new agricultural integrated management concepts, reduce the use of chemical pesticides, implement good agricultural practices, and achieve safe production goals.

Highlights

Promote integrated pest management concepts and promote new safe plant protection products

Develop Integrated Pest Management (IPM) system to reduce chemical use：

1. **Complete the electronic cultivation and pest control calendar which Containing the information about cultivation and management of plant diseases and insect pest (Fig 1).**
   - Include 12 types of important TGAP crops (dragon fruit, leafy vegetables, strawberry, rice, guava, carrot, broccoli, cabbage, edamame, sweet pepper, citrus, and custard apple)
2. **Add sorting and screening functions of indication of pesticides toxicity and preharvest interval (Fig 1).**
   - ① Priority to use pesticide with lower toxicity and shorter preharvest interval
   - ② Mark to remind the preharvest interval for following
   - ③ Complete the connection of chemical control data to the plant protection information system database

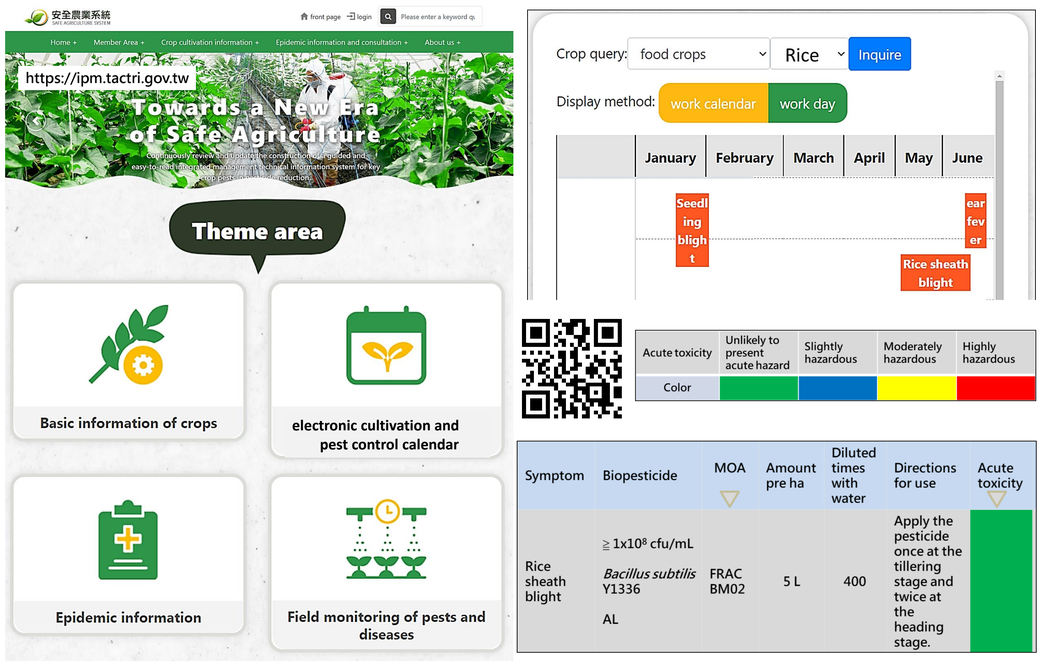

Fig 1. Safety Agricultural System provides electronic culture and pest control calendar allowing farmers to select pesticides with MOA, lower toxicity , and shorter preharvest interval.

Develop a biopesticide searching website to accelerate the entry of biopesticide into operation mode of conventional culture：

1. **Import the announced biological pesticides and their scope of use (Fig 2).**
   - ① Screening the usage instructions of biopesticides.
   - ② Inquiry for biopesticide license.
2. **Facilitate farmers to choose nearby biopesticide sales stores and increase their willingness to use biopesticides (Fig 2).**
   - ① Provide biopesticide sales point location including retailer and distributor.
   - ② Search the location of biopesticide distributors by county, city, address, etc.
   - ③ Search for sales and inventory information of biological pesticide products

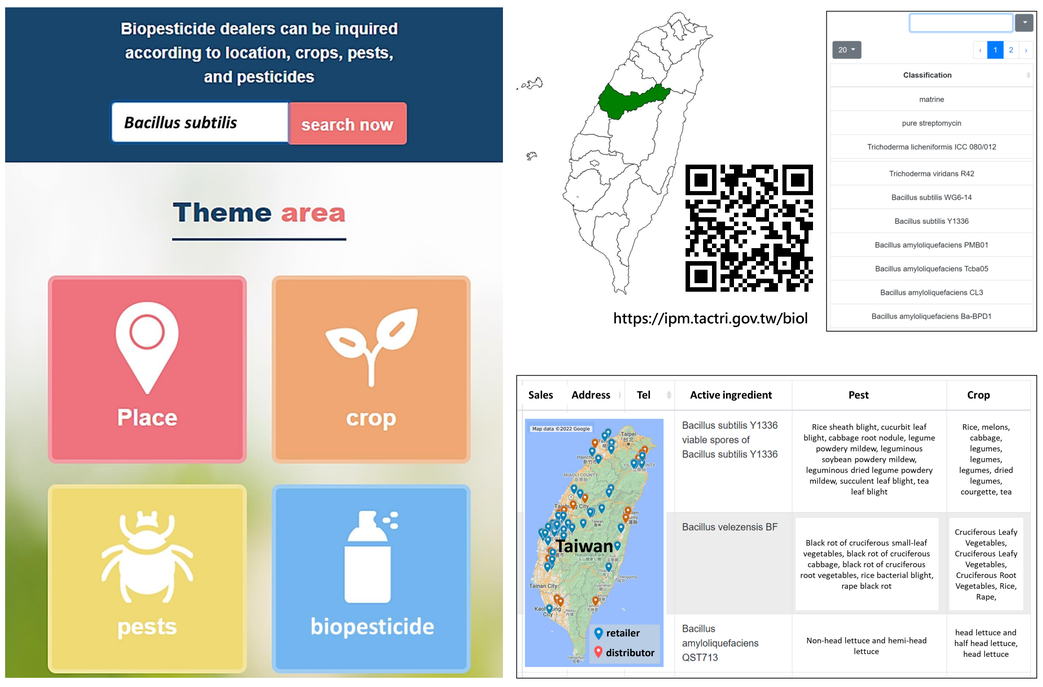

Fig 2. User can map search the location of biopesticide distributors or retailers by county, city, address and further selected by crop and pest.

Future plans

1. We plan to establish a pesticide **labeling barcode** recognition function, which enables farmers to obtain pesticide attributes and usage record forms through bar code scanning without keeping the handwritten usage records on the user side.
2. In addition to using the map to search for biopesticide sales points, environmental-friendly prevention materials such as **biological predator** will be added in the future.