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An Introduction to the 'Animal Health Module' of INAPH Software

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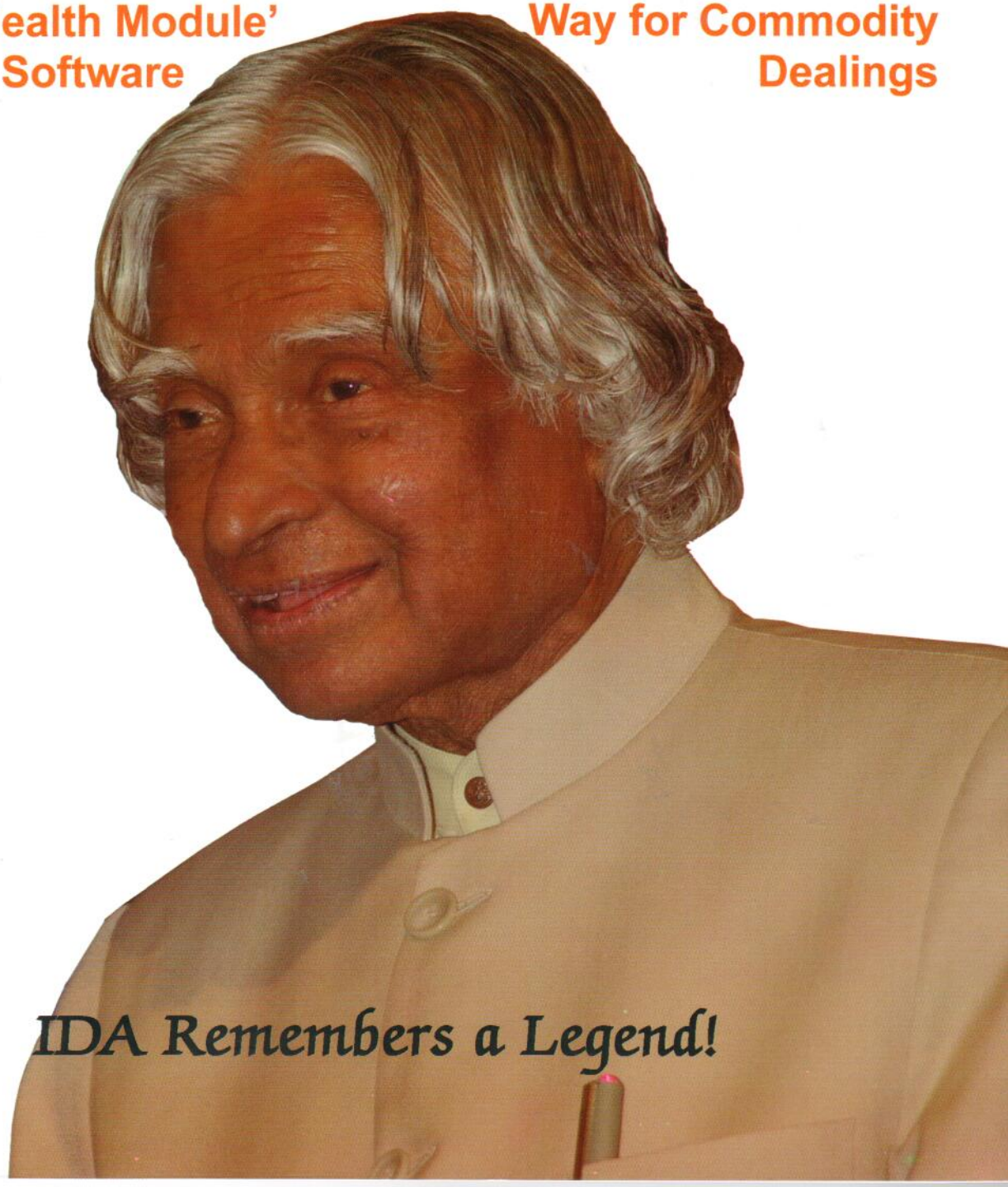

IDA Remembers a Legend!

An Introduction to the 'Animal Health Module' of INAPH Software

By
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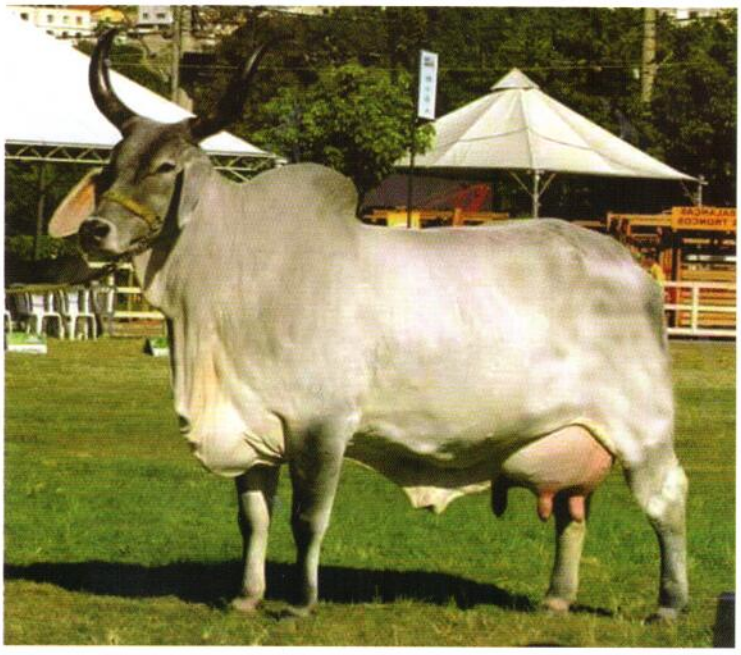
Dairy farming in India is progressing in spite of several roadblocks such as non-availability of animals with good genetic potential, limited feed resources, scarcity of land for growing fodder etc. Health plays an important role in dairying; poor health adversely affecting the productivity of animals.

The role played by animal health institutions in India needs no emphasis. These institutions have strived hard to eradicate diseases like Rinderpest and Contagious Bovine Pleuropnemonia (CBPP). Veterinary institutions in India are entrusted with various responsibilities such as routine treatment of animals, prophylactic vaccination, epidemiology, investigation, control of epidemics, extension etc. There are around 33303 veterinary institutes (veterinary hospitals, polyclinics and dispensaries) in the country which are supported by 250 diagnostic laboratories and six referral centers.

The enactment of Prevention and Control of Infectious and Contagious Diseases in Animals Act 2009 and subsequent framing of rules by the central government are expected to provide an appropriate legal framework for effective implementation of disease control programmes in the country.

Though the above areas require further improvement and development, there is a significant gap in documentation and reporting of animal diseases in our country. Lack of proper information precludes the policy makers in formulating effective programmes. Most of the disease reporting is still done manually leading to protracted delay in implementation of effective control measures. Farmers incur huge economic losses as a consequence.

The National Institute of Veterinary Epidemiology And Disease Informatics (NIVEDI), formerly known as Project Directorate of Animal Disease Monitoring and Surevillance (PD_ADMAS), had developed online database for data collection and analysis of critical reporting of disease events referred as the National Animal Disease Referral Expert System (NADRES). Another system to track disease outbreaks-NADRS (The National Animal Disease Reporting System) was also developed during 2011 through NIC (National Informatics Centre) which has a network of 7032 nodes throughout the country.



Since the need for capturing routine activities by veterinarians such as prophylactic vaccination, treatment, deworming, disease identification and confirmation, management of disease outbreaks etc. was also felt, the National Dairy Development Board (NDDB) developed a software in association with Infosys, an information technology company located in Bangalore, referred to as Information Network for Animal Productivity and Health (INAPH). This program

The National Dairy Development Board (NDDB) has developed a software in association with Infosys referred to as Information Network for Animal Productivity and Health (INAPH). The database is used to estimate the incidences of various diseases in animals in different parts of the country. This rich repository of information would also help policy makers in estimating economic losses due to a particular disease, undertaking risk analysis, developing disease control strategies. Through the INAPH system, the traceability of the animals registered is also assured from its birth to death. It is a valuable tool that enables veterinarians to record all interventions carried out on the animal through efficient and exhaustive drop-down menus, thus eliminating the need to maintain case sheets. The software has been in use in the field for the past three years and is useful in documenting the activities being carried out in animal health.

captures all these activities through its health module. The database thus created can be used to estimate the incidences of various diseases in different parts of the country. This rich repository of information will also help policy makers in estimating economic losses due to a particular disease, undertaking risk analysis, developing disease control strategies with an ultimate aim of obtaining disease free status for the country or regions/zones of the country. Through the INAPH system, the traceability of the animals registered is also assured from its birth to death.

The INAPH system also helps in recording activities in breeding, nutrition and milk recording, thus making it a holistic animal husbandry information system with respect to cattle and buffalo.

The animal nutrition module contains the ration balancing software which provides the least cost balanced ration formulation to the farmers, based on the animal profile and available feed resources with the farmer. The system takes into account the various parameters and nutrition requirement of the animal while formulating the ration so that the feeding costs are optimized to the level of production.

The breeding module records various parameters in artificial insemination, pregnancy diagnosis, calving and calf registration. The milk recording module is used in various Progeny Testing/Pedigree Selection areas to estimate the lactation yield of the animals and to calculate the breeding values of the bulls based on the production performance of their daughters.

The milk recording and animal nutrition modules are supported by respective laboratory modules which captures the results of milk component analysis and feed analyses.

The Animal Health Module

The Animal Health module of INAPH is designed to capture the entire gamut of activities related to health that is usually carried out on the animal. The data can be captured either for individual animals (individual services) or a group of animals (group services). Ear tagging of animals is a pre-requisite for collection of data under individual services.

The Animal health module is also supported by a pathology laboratory module, wherein the results of the tests conducted on the samples collected are automatically updated in the animal health module.

- **Individual Services:**

The individual services that can be recorded are vaccination, deworming, disease testing, fertility details, treatment and follow-up, which is linked to individual animals through their tag numbers.

- **Group Services:**

This category captures data pertaining to a group of animals at a location (village/hamlet), species (cattle or buffalo), number of animals etc., without the need to identify individual animals. The group services that can be recorded are campaigns conducted on a mass scale, namely, mass vaccination, mass deworming, mass disease testing, reporting an outbreak and its follow-up and village infertility camps.

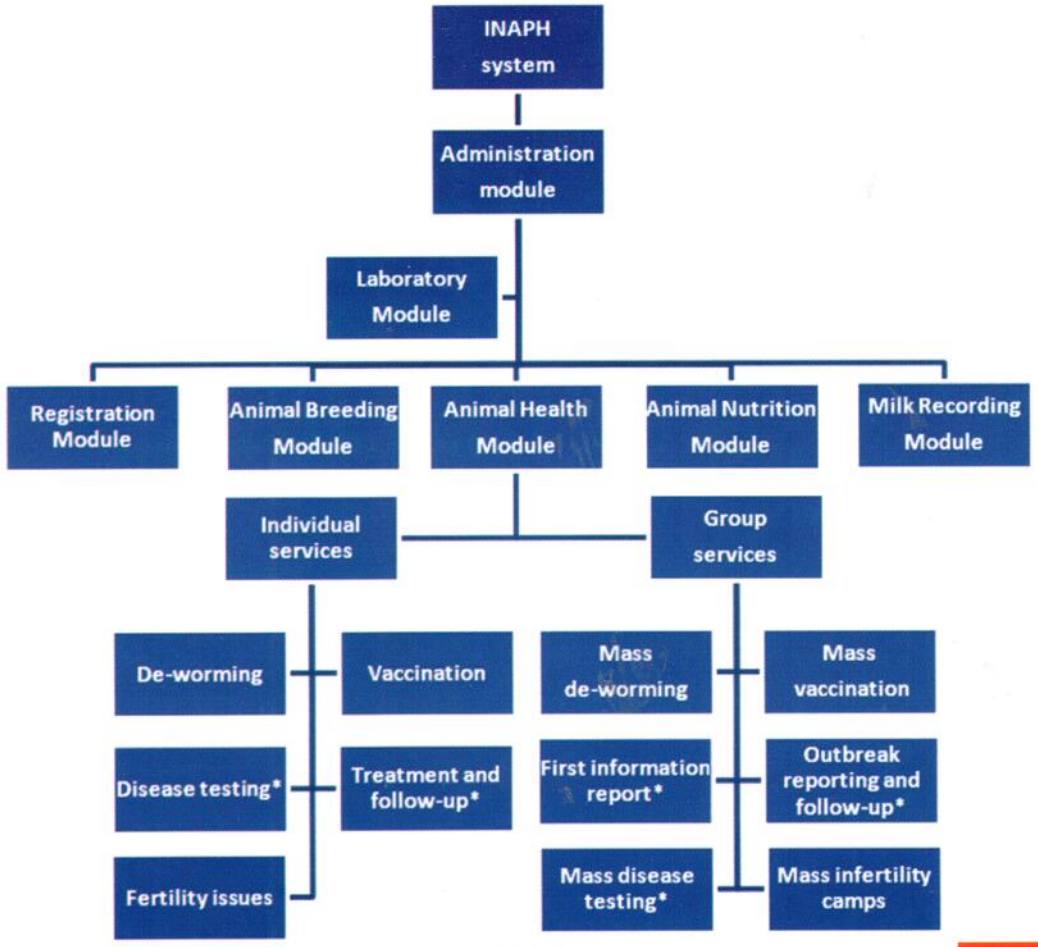
The added advantage is the linkage between the individual and mass services modules. Animals registered through INAPH if available in a village selected for group activity can be directly selected through the mass module thus eliminating the need for individually entering transactions for each registered animal.

Individual Services — Sub-modules

- **Vaccination:** It captures the particulars such as the name of vaccine, vaccination date, vaccine type and subtype, type of formulation, route of vaccination, manufacturer, batch number, dosage, vaccination charges and receipt number. The previous vaccination details will also be displayed once the tag number is entered.
- **Deworming:** This sub-module captures date of de-worming, dosage, name of de-wormer (generic), manufacturer and batch no., amount to be paid and receipt number. The last de-worming details also appear once the tag no. of the animal is entered.
- **Fertility Issues:** The date of examination, the symptoms and disease suspected can be captured. The last examination date will also appear when tag no. is entered.
- **Disease Testing:** A list of diseases against which testing can be done will appear in the dropdown menu for which testing can be done on the spot and results declared by the user itself (e.g. SID for TB, JD) and/or samples collected for dispatch to lab for further processing. Once processing is completed from the laboratory, the results can be viewed by clicking the "view test results" radio button.
- **Animal Treatment and Follow-up:** These sub-modules can capture almost all the events occurring during treatment of an animal, namely, symptoms observed, disease suspected, temperature, pulse, respiration, rumen motility, case status, date of treatment etc. There is also a remark text box where any other observation that is not covered through the dropdown menu can be recorded. The symptoms, diseases and medicines can be easily selected from dropdown menu which is populated from a very rich master database. The user also has an option to enter any other symptom/disease/medicine/that is not covered by the dropdown menu. There is also an option to collect samples, if required.

The user can do multiple follow-ups on the same case or open new cases for the same animal at any point of time. During follow-up, the open case can be searched by selecting the village in which the animal is registered or by entering the tag no. of the animal. The result of the samples sent to the lab will be available in the follow-up sub-module once it is processed from the lab.

Fig. 1: Scheme of INAPH and Animal Health Module



** Pathology laboratory support available*

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Group services — Sub-modules

The following group services sub-modules have similar components as in case of individual services except that in place of individual tag nos. the villages and the number of animals that have been provided the services are recorded:

- Mass vaccination
- Mass de-worming
- Mass disease testing
- Village infertility camps

As mentioned earlier, it is also possible to select individual animals which are registered through INAPH in the village from the group sub-modules so that the above activities are updated in the individual database of registered animals even if done through the group services module.

- **First Information Report (FIR):** This sub-module helps in reporting the occurrence of infectious diseases of importance by any personnel working in the dairy sector (AI worker, milk recorder, resource persons etc.) The information would be then transmitted to senior officers who will initiate appropriate action for investigation and upon confirmation of disease, initiate appropriate control measures. The FIR captures the date of first incidence, date of reporting, symptoms seen, disease(s) suspected, the species (cattle/buffalo/both) affected and mortality, if any. It also records the village, taluk and district where the disease incidence occurred.

- **Reporting an outbreak and follow-up:**

This sub-module would be utilized by the user of the AH module (vets) to report an outbreak, the elements remaining the same as that of FIR. However, once an outbreak is registered, multiple follow-ups can be carried out during an outbreak so that it can be continued till the cessation of outbreak. The laboratory confirmation reports can also be viewed in this sub-module. Once the follow-up report is marked as final, all the interim reports would be collated into a single outbreak report. The probable sources of infection and the action taken to control the outbreak also can be recorded *(See Fig. 1)*.

Reports

There are three types of reports that can be generated from AH module of INAPH. This communication mentions only the types of reports being made available as it will be too exhaustive to describe each individually.

- **Action reports:** It is a part of the application which helps in day to day operations of the user. The following action reports can be generated pertaining to animal health:
  - (a) Health care details of an animal
  - (b) Female calves due for vaccination
  - (c) Villages due for group services:
    - (i) Vaccination
    - (ii) De-worming
    - (iii) Disease testing
  - (d) Animals due for individual services:
    - (i) Vaccination
    - (ii) De-worming
    - (iii) Disease testing

- **Management Information System (MIS) reports**: These reports are generated outside the software through the internet. It does not require the software to be installed and can be generated from any system with internet connectivity. These reports help in monitoring, analysis and decision making. The following MIS reports can be generated.

(a) Animal treatment summary: The user wise number of new, follow-up, cured, closed[1] cases and mortality details can be viewed either month-wise or date-wise.

(b) Coverage: Reports on animals provided services either through mass or individual services and the coverage vis-à-vis registered animals and the total population (as per census) can be generated at village, district and state level for the following interventions:

(i) Vaccination (ii) De-worming (iii) Disease testing and (iv) Infertility camps.

(c) Disease testing: Reports on disease testing done at individual or mass scale can be generated user-wise, village-wise or disease-wise for cattle, buffalo or for both.

(d) Disease pattern: This report elucidates the month-wise occurrence of any disease for a period of 12 months.

(e) Disease specific efficacy of treatment: This report provides the top five most common therapies that were reported effective for the top five symptoms seen in a particular disease which would help in improving the cure rates of a disease and in rationalising medicine usage.

(f) Outbreak: Here too, reports of outbreak can be generated user-wise, village-wise and disease-wise for any given month. It provides the details of total numbers of cattle/buffalo that were affected and that died during the outbreak. It also provides the details of the outbreaks with respect to the first date of occurrence, date of

[1]A case is considered as "closed" if no transaction is carried out on the open case for a period more than 15 days. Therefore, it is always advisable for the user to enter the actual case status to get a true picture. This however may not be always possible in the field, hence the automatic close option is provided in the software.

Fig. 2: Top ten reproductive conditions reported (Sabarkantha district)

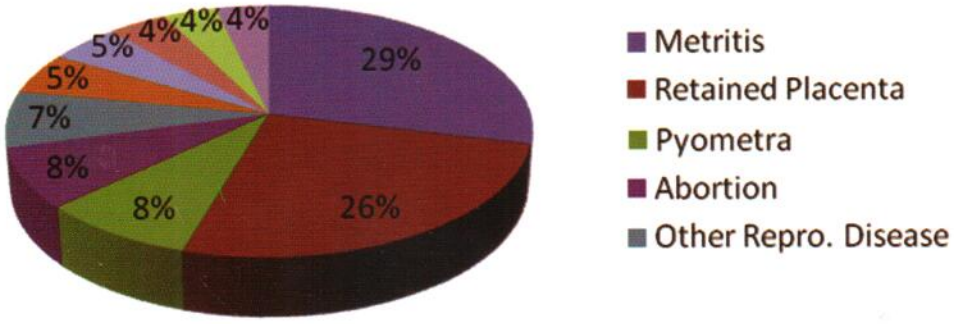


Fig. 3: Top ten udder conditions reported (Sabarkantha district)

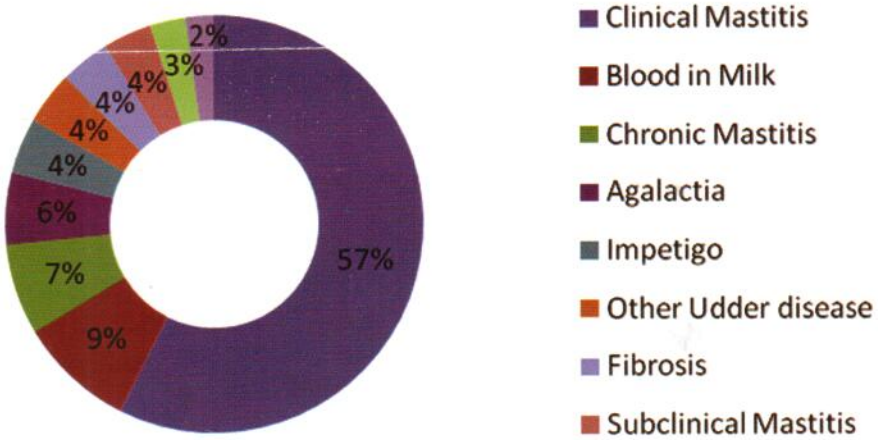
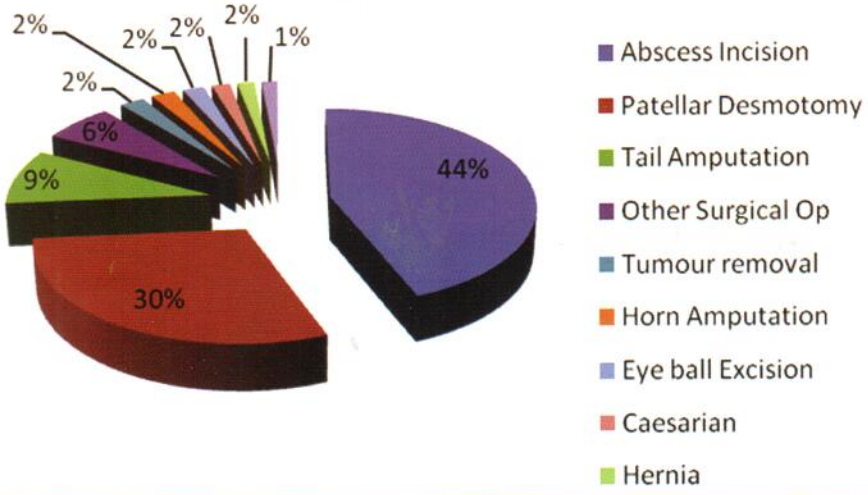


Fig. 4: Ten top surgical cases reported (Sabarkantha district)



reporting, salient symptoms observed, action taken, probable sources of infection, date of resolution, number of days of outbreak etc.

(g) Pathology summary: This report provides the user-wise, sample-wise no. of samples sent and number of samples analysed for the period queried.

(h) Disease summary: This report provides the user-wise, village/taluk/district-wise, diseases reported for the period under query.

(i) Disease Management Report: This report provides a snapshot of all the diseases reported for the period queried also giving the status break-up of the cases (new/follow-up/cured/closed/died).

Pathology Laboratory Module

This is a sub-module of the laboratory module of INAPH which aids the veterinarian in speedy diagnosis of diseases and confirmation of outbreaks. Since the pathology laboratory module is integrated with the animal health module, all transactions relating to sample collection and tests required are automatically updated in the laboratory module once it has been entered and saved in the animal health module. Similarly, the results entered in the lab module are updated automatically in the animal health module.

The following reports are also available in the pathology modules:

Pathology Sample Status Report: This report reflects the details of samples received by the laboratory, samples yet to undergo testing and those completed by the laboratory during the query period. The type of samples can also be sorted based on the status of the animal (live/dead/both).

Samples Summary Report: This report provides the details of user-wise, animal status-wise, sample-wise details of samples received, tested, processed and the time taken (in days) for testing each sample.

Administration Module

All the dropdowns that appear in animal health and pathology modules are populated from rich masters in the administration module. Any entry in the administration module will reflect across all the modules.

Deployment of the INAPH health module in the field

The INAPH health module has been deployed in two districts in Gujarat. Around 5.4 lakh transactions have been carried out in these two regions till Jan'15.

Some of the graphical reports generated from the cases reported are shown in Fig. 2, 3 and 4.

Conclusion

The INAPH health module is a valuable tool that enables animal health personnel, especially the veterinarians, to record all interventions carried out on the animal in the least possible time through efficient and exhaustive drop-down menus, thus eliminating the need to maintain case sheets, which is a cumbersome and time consuming process. The software has been in use in the field for the past three years and is found to be useful in documenting the activities being carried out in animal health. A variety of reports also can be generated that enables the users and policy makers to monitor, assess, analyse and make informed decisions which would contribute in improving the health of dairy animals. It may however be noted that animal identification through unique numbers is a pre-requisite to harness the complete potential of the software.

Any institution involved in delivering animal health inputs in dairy husbandry can have access to the INAPH health module by coordinating with NDDB.

References

http://dahd.nic.in/dahd/WriteReadData/FINAL%20ANIMAL%20AR%202013-14%20FOR%20WEB.pdf

http://egovreach.in/social/node/740

http://www.pdadmas.ernet.in/index.php?action=success1

http://www.pdadmas.ernet.in/index.php?action=about

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