



# FROM THE FIELD TO THE LAB



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**A SURVEY IS NOT AN EXPERIMENT  
AND OBJECTIVES OF A DIAGNOSTIC  
SURVEY ARE BEST LIMITED TO THE  
DISCOVERY OF WHAT COMBINATION  
OF PESTS AND HOSTS EXIST AND A  
RELATIVELY BASIC ASSESSMENT OF  
THE DAMAGE CAUSED IN THE  
CROPPING SYSTEMS UNDER STUDY**

Waller, Ritchie & Holderness, 1998. Plant Clinic Handbook.  
IMI Technical Handbooks No. 3

# FIELD KIT

## Essential requirements for field survey:

- hand lens (x10, x15 , x20)
- knife
- spade
- sample containers [brown bags, envelopes, specimen tubes]
- cooler box / plant press
- camera
- recording materials [notebook, labels, markers]



# COLLECTION AND TRANSPORT OF PLANT DISEASE SPECIMENS

- Careful collection is essential – to avoid unnecessary work & achieve worthwhile results
- Collect samples in the early to middle stages of disease – easier to examine and isolate
- Choice of material vital and basic knowledge of symptoms is needed
- Samples need to be carefully packaged – no plastic!
- Collection and specimen details necessary
- Samples should be sent as quickly as possible

# SURVEY AND DATA SHEETS

**Collection details should include:**

- a) **Details of site:** country, state, locality, collection date, collector's name, map references and altitude
- b) **Host and part of plant:** growth stage, plant appearance, type of planting
- c) **Symptoms:** type, severity, distribution, sequence, other
- d) **Environment:** recent weather, greenhouse, soil type, site situation, biotic factors
- e) **Site history:** pesticide usage, previous cropping, other

# COLLECTION AND TRANSPORT OF PLANT DISEASE SPECIMENS

- Packages should be strong enough to ship anywhere and should be clearly marked
- Required import permits/documentation necessary
- If possible, take pictures of samples when collecting from the field (digital cameras) – great pictorial reference of symptoms



# *'IN FIELD/HOTEL'* ISOLATION

- Reduces the number of possible contamination sources
- If possible, carry necessary lab supplies in cooler (pre-poured agar plates, alcohol, isolation tools...)
- Make isolations immediately in field or press disease plant samples for isolation later in hotel room
- Aseptic work possible
- Time saver



**A CLEAN & TIDY LAB SHOWS A  
PROFESSIONAL ATTITUDE TOWARDS  
WORK IN HAND, APPARATUS,  
CHEMICALS & HEALTH AND SAFETY OF  
COLLEAGUES**

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# LAB HYGIENE

- **Equipment:** returned to proper storage; clean & working condition
- **Lab reagents & chemicals:** placed on appropriate shelves immediately after use with labels to the front
- **Culture & plant material:** kept in trays or bags **NOT** left loose on the benches; when not being examined they should be kept in incubators or fridges
- **Lab benches & other surfaces:** kept clean; preferable to clean up after each stage

# CONTAINING CONTAMINATION

- **Fungal:**

- all sources of debris on which fungi might sporulate should be removed daily
- ensure adequate ventilation; careful of air-borne spore contamination
- laminar flow benches (class I or II) - for sub-culturing sporulating micro-organisms
- ‘clean’ air benches - plate-pouring & sub-culture of non-sporulating cultures



★ **No type of cabinet or flow hood should be used as a substitute for good aseptic practices in the lab**

# CONTAINING CONTAMINATION

## • Mites:

- cause major problems within 2 – 3 days if undetected; feed on fungal cultures causing contamination
- ragged colony margins, fungal or bacterial contaminant growth indicate their presence
- **PREVENTION** better than the cure



- Examine all new material entering lab; if possible have separate areas/rooms for clean & dirty material
- Don't keep plant material in same incubator as cultures/plates
- Dispose of old plant material & cultures quickly; autoclave!