Leptospirosis

GUIDELINES FOR THE BANANA INDUSTRY

- Wear boots in moist or muddy soil and puddles
- Cut long grass. It attracts rodents
- Wear shoes in mud and puddles in and around sheds
- Wear gloves to touch rodents, nests or sites where rodents have been
The Innisfail-Tully region has the highest rate of leptospirosis in humans in Australia. Furthermore, it is estimated that up to two thirds of Innisfail-Tully's leptospirosis cases are people who work in the banana industry.

The very nature of work on a banana plantation places workers at risk of getting leptospirosis, particularly during the wet season.

These Guidelines give background information on the disease, explain the workplace health and safety obligations and make practical suggestions on how to reduce the risk of leptospirosis on banana farms. The Guidelines are primarily for the employer/manager and are supported by a general poster and brochure for workers. Banana farmers have a responsibility to ensure that their individual workers know about leptospirosis and how to reduce the risk of contracting the disease.

These Guidelines utilise four key prevention and control messages: WASH, COVER, CLEAN UP and SEE A DOCTOR, and apply them to the specific activities on banana farms.

For more information about leptospirosis, contact the Tropical Public Health Unit on 07 40503600.

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Acknowledgments

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1 What is leptospirosis?
Leptospirosis (or Weil’s Disease) is an infectious disease caused by bacteria. Leptospirosis is spread in the urine of infected animals (wild and domestic), and in water and soil contaminated with infected urine. It is not spread from person to person.
The infection enters through broken, grazed or cut skin (especially on the hands and feet), and sometimes through the linings of the mouth, nose and eyes.

2 Why are banana farm workers at risk?
Leptospirosis is very common on farms on the coastal strip between Ingham and Innisfail, particularly during the wet season.
On average, about two thirds of notified cases of leptospirosis from the Innisfail/Tully area are banana workers.
This is because the leptospirosis bacteria thrives in wet conditions, and because banana farming involves lots of exposure to soil and water that may be contaminated with animal urine. Leptospirosis is most probably spread by rodents on banana farms – but bats, pigs, dogs, frogs and bandicoots could also be involved.
Banana workers who don’t wear protective clothing (boots or shoes, long sleeved clothing, gloves), and who don’t wash their hands frequently and thoroughly, are most at risk of catching leptospirosis. Smokers are at greater risk because their hands are always going to their mouths.
There are 23 strains of leptospirosis bacteria in Australia (and over 230 strains worldwide). Unfortunately there is no vaccine to cover all the strains of leptospirosis in the Innisfail/Tully area.

3 Leptospires
Leptospires are spiral shaped bacteria that are very persistent in the environment. Laboratory workers recognise the dangers of handling this bacteria and wear protective clothing to reduce the risk of laboratory infections.

Leptospires thrive in moist conditions
• They can survive for several hours in plain water, and longer in puddles and stagnant water such as effluent ponds.
• They can survive up to six months in soil or water in the right conditions.

Leptospires can be temporarily cleaned out
• The bacteria can be destroyed with either disinfectants or bleach.
• High (boiling or cooking) temperatures will kill them, and they are sensitive to extremes of acid (pH) and sunshine.
• Clean-up measures may only be effective for hours or days if there is a risk of an animal returning and recombinating the environment with urine.
Notified cases of Leptospirosis per 100,000 people 1996–2001

Base data courtesy of Qld Department of Natural Resources and Mines
In 1999 there was an outbreak of leptospirosis in Far North Queensland. During the outbreak, 160 cases were reported from Cairns, Innisfail/Tully and the Tablelands. In contrast, in 1998 there were 66 cases and in 2000 there were 96 cases. Some people consider that the 1999 outbreak was due to high rainfall and floods accompanied by a rat plague.

Most people that get leptospirosis are men over 15 years of age, and most of them work outdoors.

CASE STUDY: "I didn’t think I had lepto."

Tully banana worker, Kevin Morrissey nearly lost his life to leptospirosis in 2002. Mr Morrissey said he'd heard of lepto but didn't think he had it. "I thought I had the flu for about a week before I went to the doctor. I ended up being helicoptered to Cairns Base Hospital and one doctor said it was a miracle that I survived," he said.

Mr Morrissey spent more than three weeks in intensive care at Cairns Base Hospital with severe bleeding from his lungs caused by leptospirosis.

Mr Morrissey's work put him in contact with rats' nests: "I try to use a knife to flick the nests out but sometimes end up using my hands. I thought you'd have to be unlucky or have a decent cut to get lepto."
5 How humans are exposed to leptospirosis

Leptospirosis is very easy to catch directly from an infected animal or from contact with contaminated water or soil. It is not transmitted from person to person.

Cuts, sores and abrasions on the skin put you at greater risk.

- You do not have to come in direct contact with the urine of an infected animal. Even indirect contact with, for example, water contaminated with infected animal urine can lead to leptospirosis.
- You can literally catch it ‘in the blink of an eye’ and may not be aware that you have been exposed.
- The infection can enter through the membranes of the eyes, nose or mouth.
- You can also take it in through the mouth, by licking your lips, eating or smoking before washing and drying your hands.

6 How leptospirosis affects your health

Leptospirosis occurs in mild and severe forms, and some strains are more harmful than others. Unfortunately the strains that are common in Innisfail/Tully area can make you seriously ill (with bleeding from the lungs, liver damage, kidney failure) if they are not treated promptly. With all cases of leptospirosis, early treatment is the key to limiting the infection and preventing serious illness.

It is possible to have been exposed to leptospirosis without feeling any symptoms at all. The mild form of the disease is often ‘self-limiting’ causing only minor flu-like symptoms. People can feel the effects of leptospirosis anything from 2 to 21 days after being infected. This sometimes makes it difficult to trace the exact cause.

Almost two thirds of people with leptospirosis in north Queensland need to be hospitalised. The average hospital stay is five days, but those with severe disease require considerably longer.

The symptoms can include:

- Fever and headaches
- Chills and sweating
- Severe muscle pain (particularly calves and thighs)
- Vomiting
- Bloodshot eyes

Leptospirosis thrives in moist soil and puddles such as those left by tyre ruts.
1 Workplace Health and Safety Act 1995

The Workplace Health and Safety Act 1995 places obligations on all persons who may affect the workplace health and safety of others, either by their actions or their lack of action.

<table>
<thead>
<tr>
<th>Party</th>
<th>Obligation</th>
</tr>
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<tbody>
<tr>
<td>Employer</td>
<td>Ensure the workplace health and safety of each of their workers, as well as ensuring that the workplace health and safety of themselves and others (for example, visitors, contractors, salespersons) is not affected by the way they conduct their business and work activities.</td>
</tr>
<tr>
<td>Self-employed persons</td>
<td>Ensure the workplace health and safety of themselves and others is not affected by the way they conduct their business and work activities.</td>
</tr>
</tbody>
</table>
| Persons in control of workplaces   | • Minimise the risk of injury or disease for persons coming to perform work at the workplace.  
  eg. a banana farm manager          | • Minimise the risk of injury or disease from any plant or substance (ie. machinery or chemicals) they provide for the purpose of work to persons who are not their workers.  
  • Ensure appropriate, safe access to and from the workplace for persons who are not their workers. |
| Workers and other persons          | Follow instructions given by the employer for the workplace health and safety of themselves and others. They must not:  
  eg. banana farm staff, visitors, contractors, farm residents  | • wilfully or recklessly interfere with or misuse anything provided for workplace health and safety  
  • wilfully put at risk the workplace health and safety of any person  
  • wilfully injure themselves.  
  Workers must use personal protective equipment if it is provided by the employer and they have been trained in its use. |

Frequently, a person will have overlapping obligations under the Act. There are three types of instruments made to help you meet your workplace health and safety obligations – regulations, advisory standards and industry codes of practice.

Workplace Health and Safety Regulations 1995

The Workplace Health and Safety Regulation 1995 deals mainly with administrative workplace health and safety matters, for example, notification of work-caused illnesses such as leptospirosis to Workplace Health and Safety. If there is a regulation about a risk, you are required by law to do what the regulation says.

Advisory Standards or Industry Codes of Practice

The Advisory Standards or Industry Codes of Practice are developed to provide practical guidance for employers, workers, owners and any other persons about ways to identify and manage possible risks at the workplace. A person may adopt another way of identifying and managing possible risks that is more suited to the person’s business or work activity. If there is an advisory standard or industry code of practice about a risk, you should either:

• do what the standard or code says; or
• adopt another way that identifies and manages possible risks, and take reasonable precautions and exercise proper diligence about the risk.
Some of the relevant advisory standards on Risk Management include Personal Protective Equipment, Training, First Aid and Workplace Amenities. These can be obtained on the Dept of Industrial Relation’s home page (www.detir.qld.gov.au) in Workplace Health and Safety; or contact the Division of Workplace Health and Safety on free call 1300 369 915.

2 How can I meet my obligations?

There is no regulation, advisory standard or industry code of practice specifically for controlling leptospirosis on banana farms, but these Guidelines provide a framework to help you meet your obligations for preventing leptospirosis in the workplace.

If you follow the advice provided in these Guidelines, you will be considered as having taken reasonable precautions and as having exercised proper diligence in relation to the risks discussed in the Guidelines. However, these Guidelines may not cover all forms of risk associated with leptospirosis. If so, you will need to take reasonable precautions and exercise proper diligence in relation to aspects of risks not covered by these Guidelines in order to meet your workplace health and safety obligations.

3 Risk Management

In order to minimise worker exposure to the risk of getting leptospirosis, the banana farm owner or manager should do a risk assessment.

The legislative requirement to control leptospirosis using the risk management process is outlined in section 22(2) of the Workplace Health and Safety Act and states that workplace health and safety can generally be managed by:

- identifying hazards
- assessing risks that may result because of the hazards
- deciding on control measures to prevent, or minimise the level of, the risks
- implementing control measures
- monitoring and reviewing the effectiveness of the measures.

A hazard is something with the potential to cause injury or illness. For example leptospirosis is a significant hazard on a banana farm.

A risk is the likelihood of a hazard resulting in an injury or illness. For example, the likelihood (risk) of getting leptospirosis may be reduced if workers wear appropriate protective clothing.

Risk management should take into account the following risk factors:

3.1 Human Risk Factors

Employers should ensure that workers under their supervision are adequately trained to undertake the tasks that they are required to do.

The employer should provide induction training for all new staff and should continue on-the-job training during the term of their employment. Training programs and methods used should meet the specific needs of the group being trained. On the job and formal training programs should include:

- emphasising safe work practices
- raising awareness of hazards and risks in the workplace, and related reporting requirements
- task-specific training
- explaining the use and maintenance of personal protective equipment
- explaining employer and worker obligations
- providing relevant regulations and/or standards.
Employers should adequately supervise workers to ensure they are carrying out the tasks in accordance with their training and employer’s instruction.

**Training Records**
All training records should be kept and should include:

- names of persons who received training
- dates of the training sessions
- outline of the course
- names of the person who provided the training.

**First Aid**
The employer is responsible for providing adequate and appropriate first aid facilities.

First aid for leptospirosis involves simply flushing wounds, cuts or grazes under running water then washing with soap and water. This will flush the bacteria out. Waterproof dressings must be applied to all wounds, cuts or grazes. This will keep the bacteria out.

Every farm should have a first aid kit containing waterproof dressings and waterproof bandaids of all sizes to apply to wounds which may be exposed to the leptospirosis bacteria. All personnel should have access to running water and soap.

An employer should provide first aid facilities where there is the greatest risk of injury. In a large working area such as a banana farm, you should provide first aid facilities in more than one location such as in the packing shed and on the truck. Carrying a 20 litre drum of water with a tap and soap on trucks could be useful to immediately flush and wash wounds.

Responsibilities include:

- selection and training of first aid personnel
- selection, location and maintenance of first aid facilities
- policies, procedures and processes associated with the use of first aid services and facilities.

To ensure first aid facilities are appropriate for any particular workplace, the employer should consider the nature of the work performed and the likelihood of injuries or illnesses needing treatment. The location, layout and size of the working area, and the distribution of workers in the workplace should also be considered.

**Personal Protective Equipment (PPE)**
The employer, after conducting a risk assessment in consultation with workers, should determine the type and quality of protective equipment applicable to the operation. The employer should ensure that protective equipment is provided to the worker if the risk assessment shows that this is a practical control measure.

As will be seen in the leptospirosis control checklist (page 12), some tasks may require gumboots or gloves. For these tasks, the employer should ensure that the boots or gloves are worn.
3.2 Animal Risk Factors
Animal factors that need to be taken into consideration include:

- the presence of animals that may transmit the disease
- high-risk zones on the farm, such as areas where animals frequently shelter.

3.3 Environmental Risk Factors
Environmental factors that need to be taken into consideration include:

- the presence of water, for example after heavy rain, flooding and in areas with poor drainage.
- the presence of habitat that attracts animals, eg. some rodents are attracted by long grass.

3.4 High Risk Tasks
Workers should be made aware of the high-risk work areas and activities on the farm. High risk tasks are those that involve:

- contact with water or soil that may be contaminated with infected animal urine.
- contact with the urine of infected animals.

Refer to the Risk Minimisation Guidelines in the later part of this document for a list of possible high-risk activities on banana farms.

4 Reporting and Investigation
A key part of a health and safety management system should be to collect, analyse and assess details of incidents. Every injury, work-caused illness and near miss should be recorded regardless of the amount of damage or injury. Part 7 of the Regulation also requires employers to let Workplace Health and Safety know about any work-caused illnesses at the workplace. Through accurate and factual recording, work related illness can be detected, risk groups identified and strategies can be developed to overcome these.

With leptospirosis, employers should investigate the illness to get factual information to determine if the leptospirosis was preventable. This should be investigated as soon as possible.

Illness investigation includes the following steps:

- getting the facts
- determining contributing factors if possible
- deciding on the method of prevention or risk minimisation
- taking appropriate action to correct the situation
- keeping everyone informed.

Periodically review all illnesses, injuries and dangerous events to determine whether there are any patterns.

5 Rehabilitation
An effective rehabilitation program has cost advantages for employers because it reduces the amount of time injured or ill workers are away from work. Benefits to workers such as maintenance of social contacts, work habits, morale and work fitness also benefit the employer.

The aim of rehabilitation is to achieve a rapid and safe return to normal duties or, if this is not possible, to other appropriate duties which ideally secure the long-term employment of the worker concerned. Workers with work-related illnesses should have access to a rehabilitation program.

WorkCover has rehabilitation advisers and courses to help employers set up rehabilitation programs.
CASE STUDY: Looking for leptospirosis on farms

In March 2002, scientists from the Centre for Reference and Research on Leptospirosis in Brisbane visited seven banana farms in the Innisfail/Tully area taking samples of soil and water to test for leptospirosis.

Leptospirosis was found in 23 of the 107 samples taken. Six of the seven farms visited were found to have leptospirosis in their soil or water.

The most common locations for lepto were:
1. damp soil under banana trees and under leaf litter
2. tyre ruts filled with water
3. mud on the floor under the hose-down area and sorting benches in the shed.

Thirteen samples from water pooled in banana bags were taken but none contained leptospirosis. More research is planned for 2003.

RISK MINIMISATION GUIDELINES

1 Managing leptospirosis on banana farms

1.1 Risk Periods

January to June (that is, particularly during the wet season).

1.2 People on banana farms at risk

- the farmer, farming family and children
- any other people living on the farm
- all farm workers
- service workers visiting the farm, eg. truck drivers, mechanics
- others working on and around the farm, eg. contractors, drain layers.

Leptospirosis scientist, Lee Smythe, sampling water pooled on banana bags.
1.3 Potential High-Risk Activities on banana farms

**Contact with water or soil that is contaminated with infected animal urine, eg:**
- walking barefoot or wearing open shoes around moist soil or puddles
- wearing non-waterproof shoes around puddles in the shed
- working around the farm with exposed cuts or abrasions
- coming into contact with water on banana bags that may be contaminated with animal urine.

**Contact with the urine of infected animals, eg:**
- coming into contact with, or handling, animals (rats and mice, bats, bandicoots – dead or alive)
- eating at lunch areas that attract rodents at night (left unclean or with open rubbish bins)
- handling materials that may have harboured rodents eg. discarded plastic sheeting, discarded packaging materials

1.4 Responsibilities of the FARMER/EMPLOYER

- Advise all farm workers on the risks, how to minimise risks, first aid and need for treatment.
- Notify all farm residents, visitors and contractors of the risks and how to minimise them.
- Provide advice on personal protective clothing. Make it clear how it will be provided and who will provide it.
- Provide first aid kit with waterproof band aids.
- Provide hand-washing taps with soap and paper towels.
- Provide clean lunch area with lids fitted to all bins.
- Control rodents in and around sheds.
- Slash long grass around banana plants to discourage rodents.

1.5 Responsibilities of FARM WORKERS

- Ask for information about the risks.
- Follow the employer’s health and safety instructions.
- Wash and dry hands regularly.
- Routinely cover skin cuts with waterproof band aids or dressings (tape may help to keep dressings on and keep water out).
- Wear waterproof, solid shoes/boots around moist soil and puddles.
- Wear boots to cover tinea or infections on feet.
- If you cannot cover up with shoes, long sleeved clothes and gloves, then wash any exposed skin regularly. All cuts and abrasions MUST be covered, particularly on feet and hands.
## Leptospirosis Control Checklist for Banana Farms

<table>
<thead>
<tr>
<th>Hazardous Activities</th>
<th>People at Risk</th>
<th>Control Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working with bare feet, open shoes, or uncovered skin cuts.</td>
<td>• Banana farmers</td>
<td><strong>Workers</strong></td>
</tr>
<tr>
<td></td>
<td>• Farm workers</td>
<td>• Avoid contact with puddles or mud.</td>
</tr>
<tr>
<td></td>
<td>• Others</td>
<td>• Keep cuts, scratches and skin breaks covered, change waterproof band-aids/dressings regularly, cover with gloves as well if possible. (Tape may help to keep dressings on and keep water out.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Wash with running water and soap after contacting (or being splashed by) puddles, mud or potentially contaminated water.</td>
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<tr>
<td></td>
<td></td>
<td>• Wear boots to cover tinea or infections on feet.</td>
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<td></td>
<td></td>
<td>• Have a soapy shower at the end of the working day.</td>
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<td></td>
<td></td>
<td>• Wear waterproof footwear in the field. Wear closed shoes in packing sheds.</td>
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<td></td>
<td></td>
<td>• Contact doctor within 24 hours if flu-like symptoms develop.</td>
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<td></td>
<td></td>
<td><strong>Management</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Display information that leptospirosis may be a risk in this work area and include in employee induction and on-going training.</td>
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<tr>
<td></td>
<td></td>
<td>• Make sure new workers and farm visitors are aware of risks eg. signage, induction training.</td>
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<td></td>
<td></td>
<td>• Provide running water, soap, disposable towels or tissues for hand and face washing for field and shed workers.</td>
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<tr>
<td></td>
<td></td>
<td>• Provide first aid kit with waterproof band-aids/dressings to cover cuts for field and shed workers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide first aid information: flush skin, face and eyes with water if exposure is suspected.</td>
</tr>
<tr>
<td>Walking barefoot or with open shoes around moist soil and</td>
<td>• Children</td>
<td><strong>Workers</strong></td>
</tr>
<tr>
<td>puddles.</td>
<td>• Service workers</td>
<td>• Avoid contact with puddles or mud.</td>
</tr>
<tr>
<td></td>
<td>• Farm visitors</td>
<td>• Keep cuts, scratches and skin breaks covered, change waterproof band-aids/dressings regularly, cover with gloves as well if possible. (Tape may help to keep dressings on and keep water out.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Wash with running water and soap after contacting (or being splashed by) puddles, mud or potentially contaminated water.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Protect skin cuts: if in doubt, avoid the water.</td>
</tr>
<tr>
<td>Eating, drinking, smoking.</td>
<td>• Anyone</td>
<td>• Wash feet with running water and soap after contacting (or being splashed by) puddles, mud or potentially contaminated water.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide facilities for washing and drying hands before eating, drinking or smoking for both field and shed workers. Use running water, soap and disposable paper towels.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Clean kitchen benches and tables with 1 in 100 dilution of household bleach. Lunch areas to have bins with covered lids. Do not leave scraps that attract vermin.</td>
</tr>
</tbody>
</table>
## Hazardous Activities

### Coming into contact with water pooled on banana bags.
- Farmers
- Farm workers
- Control Measures:
  - Protect hands: wear waterproof bandaids on cuts and wash and dry hands as often as possible.
  - Avoid splashes from water on banana bags (particularly splashes onto face).

### Packing sheds – contact with puddles of water.
- Farmers
- Farm workers
- Service workers
- Contractors
- Control Measures:
  - Wear closed footwear in the packing shed.

### Cleaning

**Spraying bananas with water**
- Farmers
- Farm workers
- Control Measures:
  - Wear overalls and gumboots or waterproof footwear when cleaning.
  - Use low-pressure hoses/direct spray away from people.

### Coming into contact with or handling animals (rodents, bats, bandicoots), dead or alive.
- Farmers
- Farm workers
- Control Measures:
  - Cover skin cuts. Wear gloves. Wash hands with running water, soap and use disposable paper towels.

### Presence of rodents in the field and shed.
- Everyone at the banana farm
- Control Measures:
  - General shed hygiene: discourage rodents by containing food scraps and waste products in covered bins which are emptied regularly.
  - General farm hygiene: keep grasses and weeds low by slashing and/or spraying around the farm.

### Farm maintenance, especially drain-laying or anything involving water.
- Farmers
- Farm workers
- Control Measures:
  - Wear waterproof clothing; cover skin cuts.
Minimise the risk of contracting leptospirosis

**COVER**
- Wear shoes or boots.
- Wear gloves.
- Cover all cuts and abrasions with waterproof dressings or band aids. (Tape may help to keep dressings on and keep water out.)

**WASH**
- Wash hands regularly, particularly before smoking and eating.
- Wash with soap and dry with a paper towel.
- Shower thoroughly after work.
- If you cannot cover up with shoes, long sleeved clothes and gloves, then wash any exposed skin regularly. All cuts and abrasions MUST be covered, particularly on feet and hands.
- Wear boots to cover tinea or infections on feet.

**CLEAN UP**
- Control rodents in and around lunch areas and sheds and fit secure lids to all rubbish containers to discourage vermin (rats and mice are the most common carriers of leptospirosis bacteria).
- Keep the workplace very clean.
- Clean lunch area benchtops with a bleach solution after every lunch break.

**FIRST AID**
- Flush the affected area (mouth, eyes, exposed skin) with lots of running water. Wash hands and face with soap and water, taking particular care with beards and moustaches. Dry thoroughly.
- Cover all cuts and abrasions with waterproof dressings or waterproof band aids.

**TREATMENT**
- See a doctor straight away if symptoms develop.
- Treatment for leptospirosis must begin as soon as possible to stop the disease becoming more severe. Antibiotics provide the best treatment and should begin even before leptospirosis is confirmed. You will need two blood tests 3–4 weeks apart.