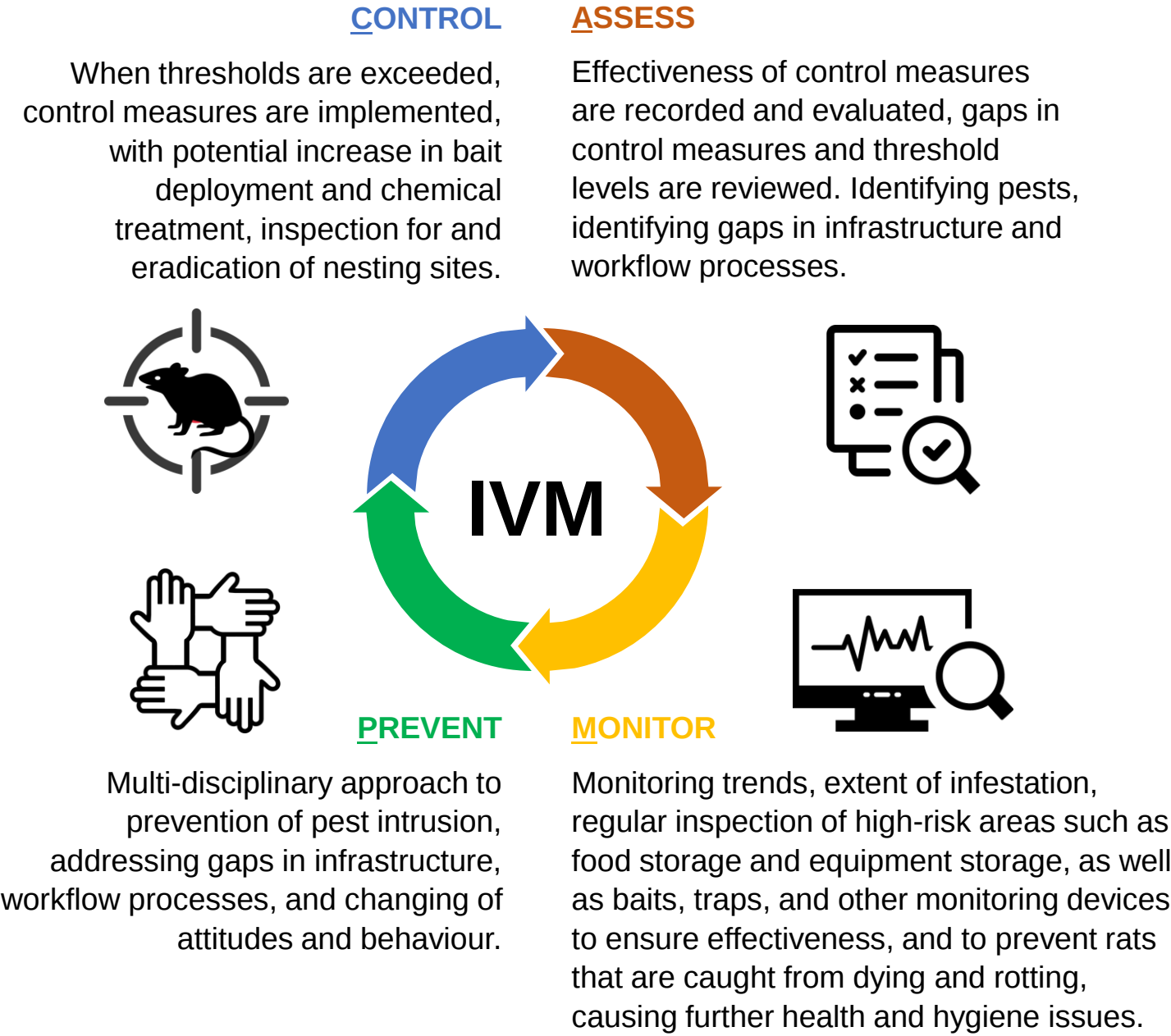


RAT GUIDELINES

For premises owners and managers

INTEGRATED VECTOR MANAGEMENT (IVM)

IVM should be a practical and sustainable plan that encompasses the coordination of efforts in rat prevention across stakeholders, with a robust system of surveillance and monitoring in place for early detection and swift action, coupled with regular reviews of current trends and measures. When prevention systems fail, control measures should be deployed, and eradication should be swift to contain any infestation from spreading.

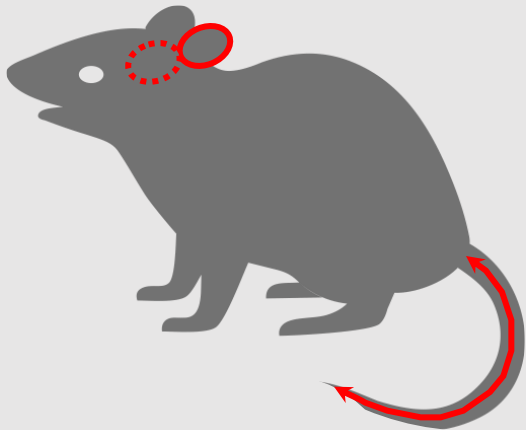


RAT GUIDELINES

For premises owners and managers

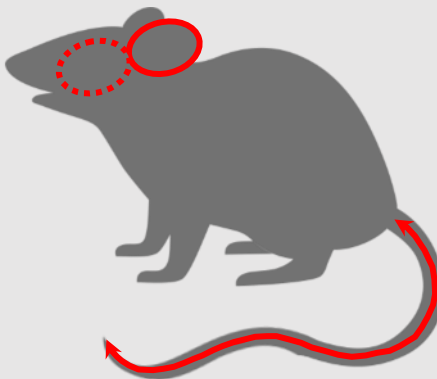
COMMON PEST RODENTS

Norway Rat



- Tail length **shorter** than combined length of head and body
- Ears small, **would not cover eyes** when folded forwards and down
- Prefer living in burrows, nests in buildings and other man-made structures
- Generally wary of new objects

Roof Rat



- Tail length **longer** than combined length of head and body
- Ears large, **can reach eyes** when folded forwards and down
- Prefer living in elevated areas, such as roofs, attics and trees
- Generally wary of new objects

House Mouse



- Adults much smaller in overall size and lighter in weight
- Prefer living in warm dry areas, including homes and buildings
- Generally exhibits exploratory behaviour
- May be confused with young rat

Asian House Shrews

- **NOT** a rodent
- Not known to be a disease vector
- Similar to size of House Mouse
- Long, sharp snout, tiny eyes and small ears
- Produces high-pitched squeaks for communication
- Prefer living in burrows, crevices, and other small, undisturbed spaces

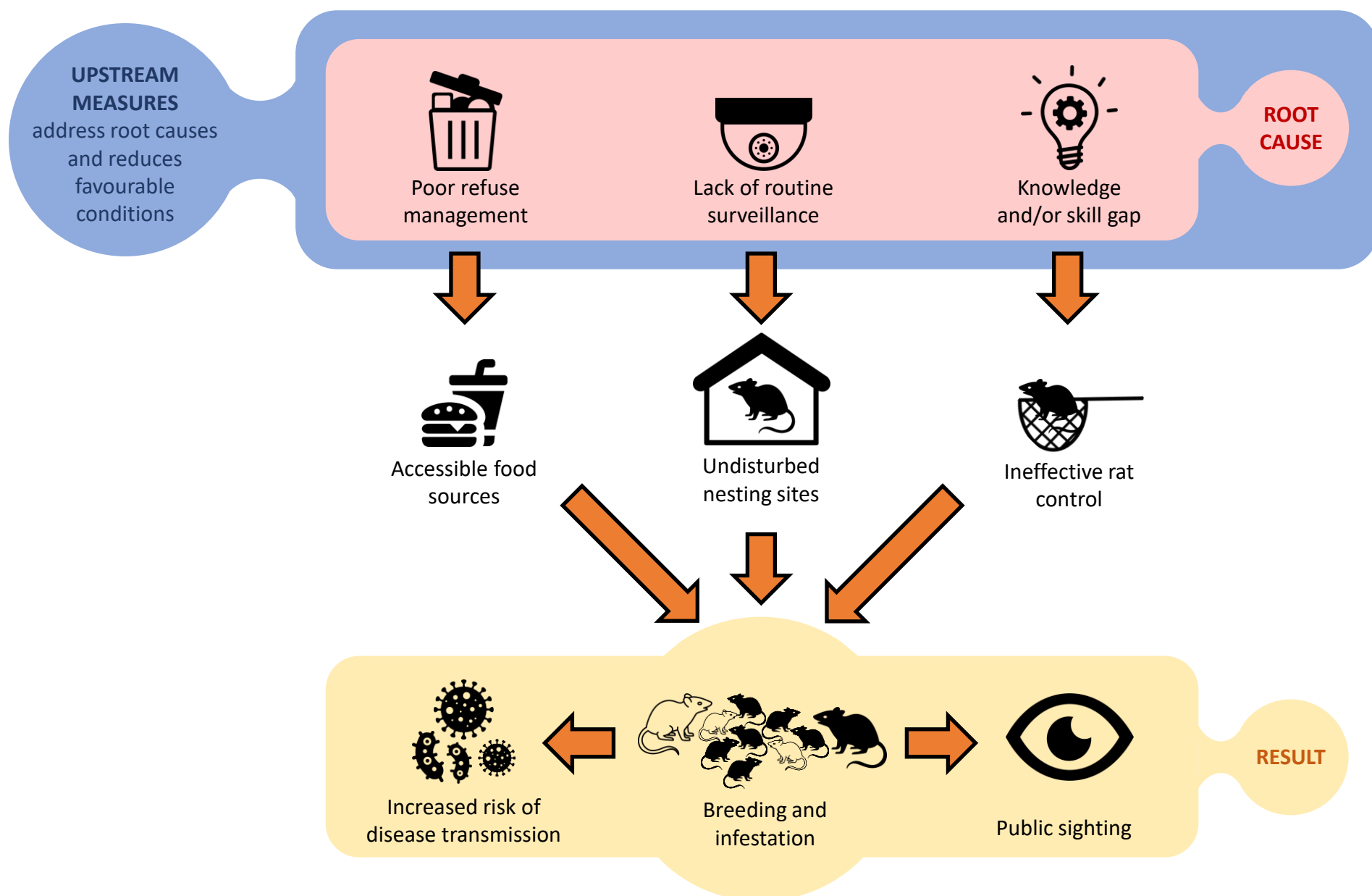


RAT GUIDELINES

For premises owners and managers

PREVENTION AS KEY STRATEGY

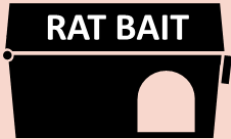
A proactive approach (known as upstream measures) addresses root causes to prevent rats from entering or harbouring within the premises. It is a sustainable and cost-effective measure in the long run, compared to treating growing infestations after a rat population has established. These include **maintaining good housekeeping, proper refuse management and removing access or entry points (rat proofing)**, which create an environment that is less attractive and accessible to rats.



RAT GUIDELINES

For premises owners and managers

SURVEILLANCE AND MONITORING TOOLS

CONVENTIONAL TOOLS	FEEDBACK	VISUAL INSPECTION	NON-TOXIC BAIT STATION
	 - Based on public sighting - May not be reliable - May not be able to pinpoint access point and nesting site	 - Labour-intensive - May disrupt business activities - Relies on expertise of inspector	 - Labour-intensive to monitor regularly - Relatively inexpensive
TECH TOOLS (IoT)	SENSORS	CAMERAS	ARTIFICIAL INTELLIGENCE
	 - Passive infrared (PIR) / movement, weight, vibration - Relies on internet connection - May or may not be real-time notification - For targeted management	 - Normal, IR, thermal, borescope - Relies on internet connection - May or may not be real-time notification - For targeted management	 - Video analytics, data analysis, rat recognition, trend prediction - Reduce false positives - For targeted management
TECH TOOLS	SINGLE-KILL	MULTI-KILL	
	 - Immediate kill - Relies on internet connection - May or may not be real-time notification	 - Immediate kill - Reduce labour to clear carcasses - Relies on internet connection - May or may not be real-time notification	

RAT GUIDELINES

For premises owners and managers

CONTROL MEASURES

TRAPS	RAT CAGES	GLUE TRAPS	SNAP TRAPS
	 • Reusable, cost-effective • Requires bait to be effective • Rats are caught live • Difficult to manage on large scale	 • Single-use, cost-effective • Bait not required, but may enhance catch rate • Quick to deploy, scalable • Hazard to non-target animals if not deployed in tamper-resistant boxes	 • Reusable, cost-effective • Bait not required, but may enhance catch rate • Quick to deploy, scalable • Safety hazard if not deployed in tamper-resistant boxes
BAITS	ANTICOAGULANT RODENTICIDE	NON-ANTICOAGULANT RODENTICIDE	
	 • Causes internal bleeding leading to death • Lethal dose consumed over several days • Used in tamper-resistant bait boxes or in burrow treatments • Highly toxic, must be secured to prevent contamination	 • Causes clotting of blood leading to death • Lethal dose achieved in single feed • Used in tamper-resistant bait boxes or in burrow treatments • Highly toxic, must be secured to prevent contamination	