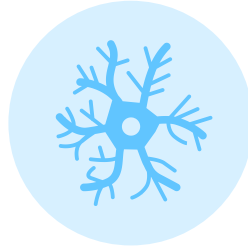


Proposing legislation to prevent pesticides found in polluted water from causing Alzheimer's disease

Teng Qiao Yun (Evelyn) and Sanchana Sarathsena

Content

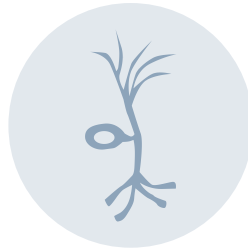
Abstract



Introduction



Method



Discussion



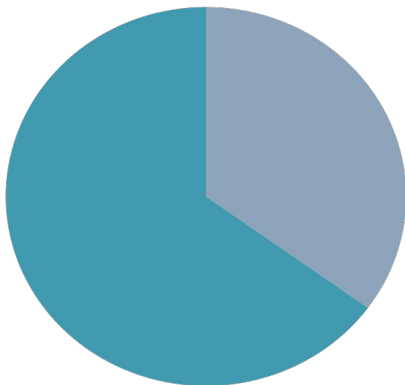
Importance of this Topic and Problem

60-70%

Of all dementia cases are
Alzheimer's disease

Affects

Memory, critical thinking,
learning and can severely
impact quality of life










Exposure to risk factors

May have occurred years
before the onset of symptoms

Alzheimer's Disease (AD)

The symptoms of AD involve a gradual decline in some, most or all of the following:

 <p>Memory.</p>	 <p>Reasoning.</p>
 <p>Language.</p>	 <p>Coordination.</p>
 <p>Mood.</p>	 <p>Behavior.</p>

 Cleveland Clinic

Alzheimer's Disease

Clinically characterized by a progressive decline in cognitive function, and is the most common form of dementia

A β

Amyloid-Beta

A normal product of the cellular metabolism that is a highly insoluble (and sticky) protein commonly found in great quantities within neuritic plaques

p-tau

Phosphorylated Tau Protein

Tau is a protein used within microtubules to provide structural support. Upon phosphorylated, they break off and form neurofibrillary tangles



Neurotoxic Pesticides

Rotenone

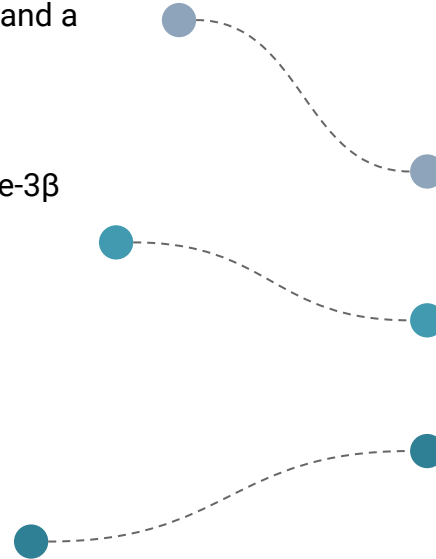
- inhibits the mitochondrial electron transport chain (ETC)
- reduces ATP produced via oxidative phosphorylation
- results in less energy for high-demand brain cells and a switch to aerobic glycolysis

Deltamethrin, cypermethrin and carbofuran

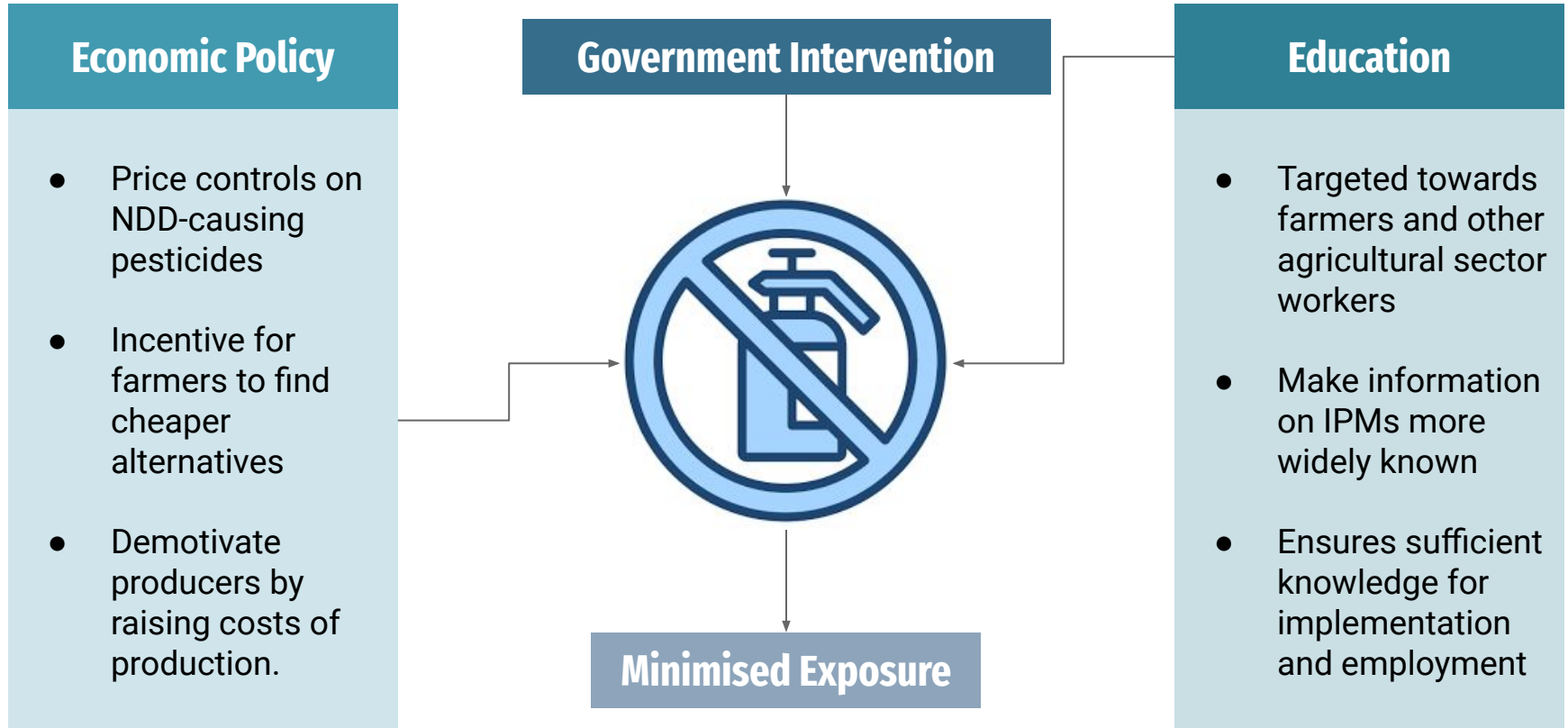
- causes the activation of glycogen synthase kinase-3 β (GSK-3 β)
- inhibits the protein phosphatase-2A (PP2A)
- causes tauopathy

Chlorpyrifos

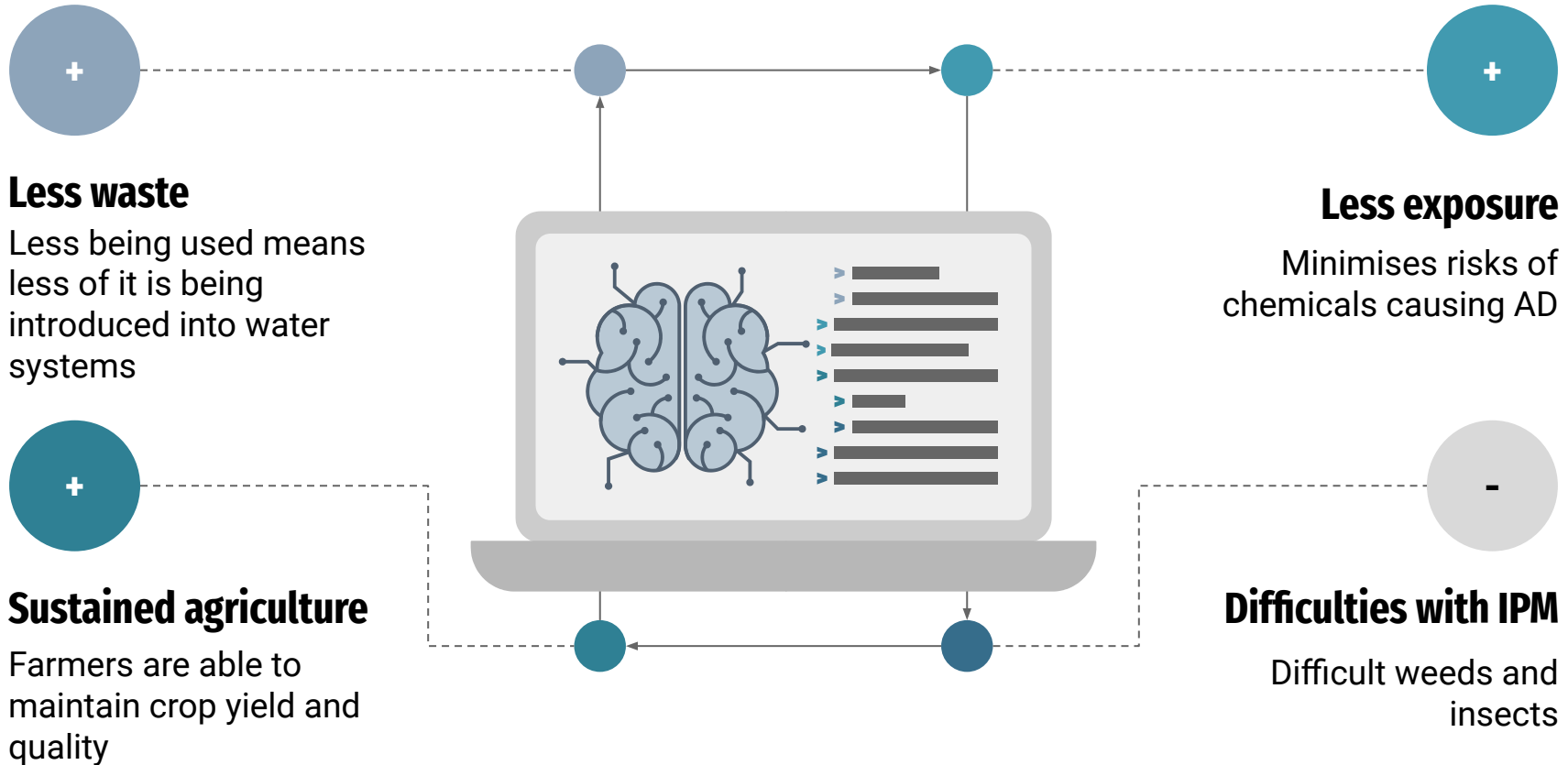
- inhibits acetylcholinesterase which impedes neurotransmission
- upregulates A β and tau
- activates GSK-3 β
- causes hyperphosphorylation of tau



Proposed Method



Expected Results and Discussion





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