

Additional File 1 to Staudacher, Brugger et al. 2021 - What agro-input dealers know, sell and say to smallholder farmers about pesticides: A mystery shopping and KAP analysis in Uganda.

Supplementary Table ST 1: WHO toxicity classes and hazard color band. Adapted from WHO (42) and FAO and WHO (9).
LD₅₀: Lethal dose whereby 50% of the animals die

WHO Toxicity Class		LD ₅₀ for rat (mg/kg body weight)	
Class*	label	Oral	Dermal
Ia	Extremely hazardous	< 5	< 50
Ib	Highly hazardous	5 – 50	50 – 200
II	Moderately hazardous	50 – 2000	200 – 2000
III	Slightly hazardous	> 2000	> 2000
IV / U	Unlikely to present acute hazard	> 5000	> 5000

Supplementary Table ST 2: Label explanation

Part of Label	Explanation
Symbol 1	Keep locked away and out of reach of children
Symbol 2	Wear rubber boots
Symbol between 2 and 3	Wear rubber apron
Symbol 3	Wear overalls
Symbol 4	Wear gloves
Symbol between 4 and (4) left	Handling of product
Symbol between 4 and (4) right	Application of product
Symbol between (4) and 5	Wear mask with carbon filter
Symbol 5	Dangerous/harmful to animals
Symbol 6	Dangerous/harmful to fish – do not contaminate lakes, rivers, ponds or streams
Symbol 7	Wear eye protection
Symbol 8	Wash after use
Reading from left to right	Order of actions to be conducted
Warning color red	WHO toxicity class Ia/Ib

Supplementary Table ST 3: Highest Qualification to be an agro-input dealer

Highest Qualification to be an agro-input dealer	Unit	KAP ^a	OBS ^a	MYS ^a
Degree AVPM ^b	%	5.2	5.9	6.4
Diploma in AVPM ^b	%	10.7	11.4	10.6
Certificate in AVPM ^b	%	13.4	13.1	11.7
Deg. /Dip. /Cert. in Business, Admin., Accounting, etc.	%	19.7	21.6	20.2
Advanced secondary (A Level) without additional training	%	9.7	10.2	12.8
Ordinary secondary (O Level) without additional training	%	24.6	22.5	27.7
Below O Level without additional training	%	16.7	15.3	10.6

Note: No significant differences were found.

^aThe samples are abbreviated with KAP for the full sample of interviewees, MYS for those participating in Mystery Shopping and OBS for those participating in the sales observation

^bAVPM: Agriculture, Veterinary, Pharmacy or Medicine

Supplementary Table ST 4: Content of general pesticide training

Topic	%
Safe use and handling of chemicals (or pesticides)	86.9
(New) product knowledge	32.9
Crop protection (Pest and disease identification & product matching)	20.8
General agriculture	18.5
Business management	23.0
Don't know / No response	2.6

Supplementary Table ST 5: Training providers for general pesticide training as well as specific training on pesticide alternatives and pesticide application. MAAIF: Ministry of Agriculture, Animal Industry and Fisheries.

	General Training (%)		Alternatives (%)		Application (%)	
Base for share (number)	n=402	n=313	n=402	n=176	n=402	n=363
Ever attended a training on pesticides ...	77.9	100.0	43.8	100.0	90.3	100.0
Informal training from shop owner	16.4	21.1	5.2	11.9	20.4	22.6
MAAIF or other national government agency	16.7	21.4	6.0	13.6	20.1	22.3
Pesticide manufacturer, importer or supplier	4.5	5.8	2.0	4.5	8.0	8.8
Local government, such as agricultural extension	7.0	8.9	4.5	10.2	7.7	8.5
Schools or university	14.7	18.8	16.7	38.1	27.4	30.3
UNACOH (Uganda National Association for Community and Occupational Health)	1.0	1.3	0.2	0.6	1.0	1.1
UNADA (Uganda National Agro Input Dealer Association)	18.4	23.6	7.7	17.6	21.1	23.4
Crop Life (Umbrella Pesticide Importer Association)	2.5	3.2	0.7	1.7	0.7	0.8
NOGAMU (National Organic Agricultural Movement of Uganda)	0.5	0.6	0.0	0.0	0.5	0.6
Media (radio / TV / newspaper)	3.2	4.2	2.7	6.3	2.7	3.0
Self-trained through product labels or supplier leaflets	3.0	3.8	2.7	6.3	8.0	8.8
NGO	2.0	2.6	1.2	2.8	1.2	1.4
Agribusiness	5.5	7.0	1.0	2.3	2.5	2.8
USAID / Feed the Future	2.2	2.9	0.2	0.6	1.5	1.7
Fellow Farmers / Cultural Practice	0.0	0.0	3.2	7.4	1.0	1.1
Other	0.2	0.3	0.0	0.0	0.0	0.0
Don't remember	5.5	7.0	2.5	5.7	2.7	3.0
No response	0.0	0.0	0.0	0.0	0.2	0.3

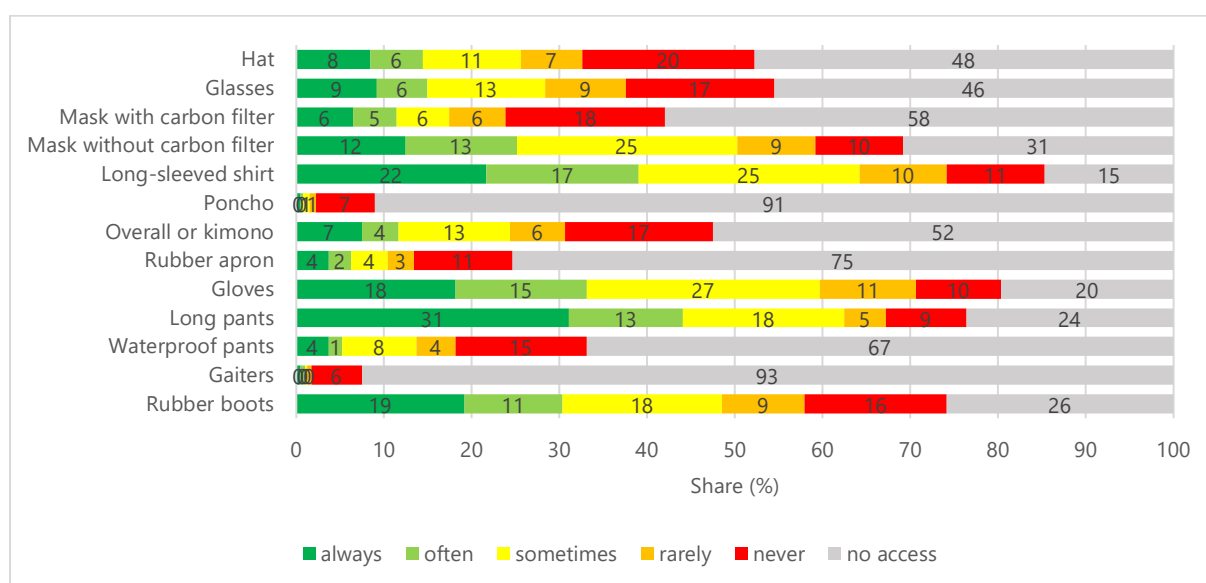
Supplementary Table ST 6: Inspection and License. MAAIF: Ministry of Agriculture, Animal Industry and Fisheries

Has your shop ever been inspected by an authority, and what for?	%
No inspection	16.2
initial license approval or license renewal	30.6
Quality control: Counterfeits, fake, unregistered, unauthorized, outdated products	36.8
inspection of the shop/setup	10.2
sensitization	3.0
other	0.5
Don't Know	1.0
No response	1.7
Is the shop licensed as pesticide distribution store with MAAIF	%
No	41.5
In progress	17.7
Yes without evidence	23.9
Yes with evidence: license not up-to-date	2.74
Yes with evidence: license up-to-date	5.72
Don't Know	7.96
No response	0.5

Supplementary Table ST 7: Categorization of deviations from recommended shop organization and setup.

Deviation	somewhat serious	serious	very serious
Documents	85.7%		
Display of CCSP	58.4% No		
Display of business license	71.7% No		
Product records	38% No		
Shop organization	20.2%	25.5%	7.7%
Clean and orderly shop	20.2% No		
Food on sale in shop			6.6% Yes
Animal feed on sale in shop			1.3% Yes
Neighboring shops selling food or animal feed		25.5% Yes	
Containers	90.3%		30.6%
(Restricted) pesticides under lock	90.3% No		
Unmarked/unlabeled containers			10.5% Yes
Repackaged containers			25% Yes
Leaking containers			6.1% Yes
Displays	99.7%		
Displaying general health and safety information	87.2% No		
Displaying warnings on pesticides	94.9% No		
Displaying prohibition of smoking, eating and drinking	93.4% No		
Displaying prohibition of underage pesticide sales	99% No		
Infrastructure	99.7%	89.8%	2.8%
Shop size > 9m ²		41.1% No	
Shelves for pesticide storage	25.5% > 2.5m	3.6% No	
Palettes for pesticide storage	6.1% > 1.3m	41.6% No	
Pesticide exposure to sunlight, water or moisture		7.7% Yes	
Pesticides stored separately from other commodities	20.9% No		
Shop walls from washable materials	23.2% No		
Shop floor from washable materials	18.4% No		
Shop floor drainage	78.8% No		
Sufficient lighting	6.1% No		
Sufficient ventilation		31.1% No	
Sufficient water supply		43.4% No	
Electric wires in wall tubes	42.9% No		
Fire Fighting equipment	93.4% No		
Unobstructed fire exit		41.6% No	
Lockable doors			2.8% No
Safety Equipment*		90.1%	
No PPE visible		61.2% Yes	
Nothing to wash eyes or remove toxic materials visible		41% Yes	
Soap and water (tap/bucket) visible		75.5% No	
No materials for cleanup or disposal visible		41.8% Yes	
Broom visible		43.4% No	
Total	100%	98%	36%

*Safety Equipment is categorized based on subsets of questions given in Supplementary Table ST 25
 CCSP: Certification of competency on safe handling of pesticide



Supplementary Figure SF 1: PPE access and use for agro-input dealers when handling pesticides.

Supplementary Table ST 8 Hygiene practices

How long after you handled pesticides do you take a bath?	%
Immediately after	22.64
A few hours later	9.45
Many hours later	64.43
The next day or later	1.24
Not applicable	0.75
No response	1.49
How long after you handled pesticides do you change your clothes?	%
Immediately after	16.92
A few hours later	14.68
Many hours later	63.43
The next day or later	2.24
Not applicable	1.49
No response	1.24
Who washes the clothes you wore during pesticide handling?	%
Me	66.67
A family member	23.38
Maintenance aid or washerwoman of the shop	7.46
They aren't washed	0
No response / Don't know / etc.	2.49

A minority (8.5%) had refillable containers in stock, but nineteen out of twenty (94.8%) of agro-input dealers said none of the farmers ever returned containers to them.

Supplementary Table ST 9: Container handling practices and disposal

Why have you stopped repackaging or mixing pesticides in your shop?	%
health effects	33.33
personal health effects	20.51
it's illegal	28.21
packaging changed	7.69
Other	5.13
No response	5.13
How are you disposing of empty pesticide containers?	%
I don't dispose of any empty containers	45.0
Municipal disposal site / waste / trash	11.7
Burning	36.3
Burying	5.5
Recycling to manufacturer	2.2
Reused for pesticide refill	0.7
Reused for other purposes	2.0
Other	0.5
Don't know	0.5
No response	0.5
How are you disposing of waste pesticides?	%
There are no waste pesticides	33.1
Municipal disposal site / Waste / Trash	19.7
Burning	12.9
Burying	8.7
Recycling to manufacturer	24.1
They are sold to customers	1.0
Apply in own garden	4.5
Other	1.0
Don't know	0.7
No response	0.5

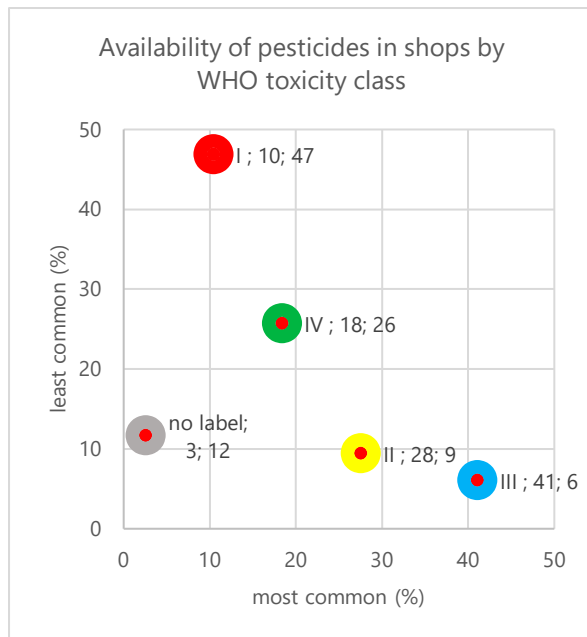
Note: Waste pesticides are pesticides that have expired or are excess pesticides and need to be disposed of.

Supplementary Table ST 10: Stocked products, their availability, bestsellers, profitability and future offerings

Products (n=402, %)	available	most sold	most profitable	offered in the future
Herbicides (synthetic)	97.5	47.3	50.7	4.2
Insecticides (synthetic)	95.3	33.3	22.9	4.0
Fungicides (synthetic)	87.3	8.0	6.7	1.5
Rodenticides	30.3	0.2	0.2	0.0
Nematicides	14.2	0.7	0.5	0.7
Acaricides	4.5	0.0	0.0	0.2
Organic pesticides	10.4	1.5	0.5	1.0
Insect pheromones	4.0	0.2	0.0	0.2
Veterinary products besides acaricides	2.5	0.2	0.2	0.2
Fertilizer	92.3	2.5	6.0	2.7
Seeds	85.6	2.0	5.7	4.7
Spray Pump	65.4	0.0	0.7	2.0
Farm Tools and Equipment	42.5	0.2	0.2	11.7
PPE	48.8	0.2	0.5	13.4
Processing and Packaging Equipment	3.2	0.0	0.0	0.5
Animal Feed	1.2	0.2	0.0	0.7
Food	0.7	0.0	0.0	0.0
Hygiene articles	0.2	0.0	0.0	0.5
Human medicine	0.2	0.0	0.0	0.0
Spray Pump spares	3.7	0.0	0.0	0.0
Other	2.2	0.7	0.2	0.7
Don't Know	0.5	0.2	2.0	33.3
No response	1.5	2.2	2.7	17.4

Supplementary Table ST 11: PPE available for sale

	Share of shops (%)	Share of shops offering PPE (%)
Base for share (number)	n=402	n=196
Cap	1.2	2.6
Glasses	11.7	24.0
Mask with carbon filter	17.4	35.7
Mask without carbon filter	31.6	64.8
Long sleeved shirt	0.5	1.0
Poncho	0.0	0.0
Overall or kimono	3.0	6.1
Rubber apron	0.2	0.5
Gloves	27.6	56.6
Long pants	0.2	0.5
Waterproof pants	0.5	1.0
Gaiters	0.2	0.5
Gumboots	35.6	73.0
Other	0.2	0.5



Supplementary Figure SF 2: Availability of pesticides in shops by WHO toxicity class



Approved pesticides available for controlling the fall armyworm in Uganda

Trade Name	Active Ingredient (AI)	Mode of action	WHO Classification	Rate of Application	
				15 L Knapsack	20 L Knapsack
 AMDOCS	Emamectin, abamectin	IRAC 6	II	25 - 30 mls	30 - 50 mls
 ROCKET	Profenofos Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 AGRO-CYPRO	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 SUPA PROFENOFOS	Profenofos Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 HITCELL	Profenofos Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 PROFECRON	Profenofos Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 SOCKET PLUS	Profenofos Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 CYPERCAL	Profenofos Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
 STRIKER	Lambda Cyhalothrin thiomethoxam	IRAC 3A + IRAC 4A	III	15 - 20 mls	20 - 25 mls
 ENGEO	Lambda Cyhalothrin thiomethoxam	IRAC 3A + IRAC 4A	III	15 - 20 mls	20 - 30 mls
 CHLOBENZO	Emamectin benzoate	IRAC 6	IV	4 tea spoon (6 g/tea spoon)	5 tea spoons
 PROVE (EC)	Emamectin benzoate	IRAC 6	IV	6 - 9 mls	8 - 12 mls
 DYNAMO (WG)	Emamectin benzoate	IRAC 6	IV		




World Health Organisation Classification and color band

IA, IB		Extremely hazardous, Highly hazardous
II		Moderately hazardous
III		Slightly hazardous
IV		Unlikely to cause acute effect in normal use



Supplementary Figure SF 3: Approved pesticides available for controlling the fall armyworm in Uganda

Supplementary Table ST 12: Suggested and purchased products during MYS

Pesticide Brand	Suggested		Purchased		WHO Toxicity Class	Approved for FAW
	Freq	Share	Freq.	Share		
ROCKET	35	27.34%	24	25.53%	II	Yes
STRIKER	21	16.41%	16	17.02%	III	Yes
Dudu Acelamectin	11	8.59%	8	8.51%	Ib	No
PROFECRON	9	7.03%	8	8.51%	II	Yes
DUDU-FENOS	10	7.81%	7	7.45%	II	No
Alpha Killer	5	3.91%	4	4.26%	II	No
Dudu Cyper 5% EC	5	3.91%	3	3.19%	II	No
Eminent 5 WDG	3	2.34%	3	3.19%	IV	No
DD Force	3	2.34%	2	2.13%	Ib	No
AMDOCS	2	1.56%	2	2.13%	II	Yes
Cyper Lacer	2	1.56%	2	2.13%	II	No
Cypershi 5% EC	2	1.56%	2	2.13%	II	No
Ascoris 48EC	2	1.56%	1	1.06%	II	No
Kuu Cyper	2	1.56%	1	1.06%	II	No
Lava	2	1.56%	1	1.06%	Ib	No
Ant-Killer	1	0.78%	1	1.06%	II	No
Chorpy 480 EC	1	0.78%	1	1.06%	II	No
Cyper Force	1	0.78%	1	1.06%	II	No
Lara Force	1	0.78%	1	1.06%	II	No
M-D FOS 48% EC	1	0.78%	1	1.06%	II	No
Metalamanco 72 WP	1	0.78%	1	1.06%	II	No
Supacyper	1	0.78%	1	1.06%	II	No
Tafgor 40 EC	1	0.78%	1	1.06%	II	No
TROBAN 48EC	1	0.78%	1	1.06%	II	No
Umeme	1	0.78%	1	1.06%	II	No
SOCKET PLUS	1	0.78%	0	0.00%	II	Yes
Cyclone	1	0.78%	0	0.00%	II	No
Extreme	1	0.78%	0	0.00%		No
SUPA PROFENOFOS	1	0.78%	0	0.00%	II	Yes

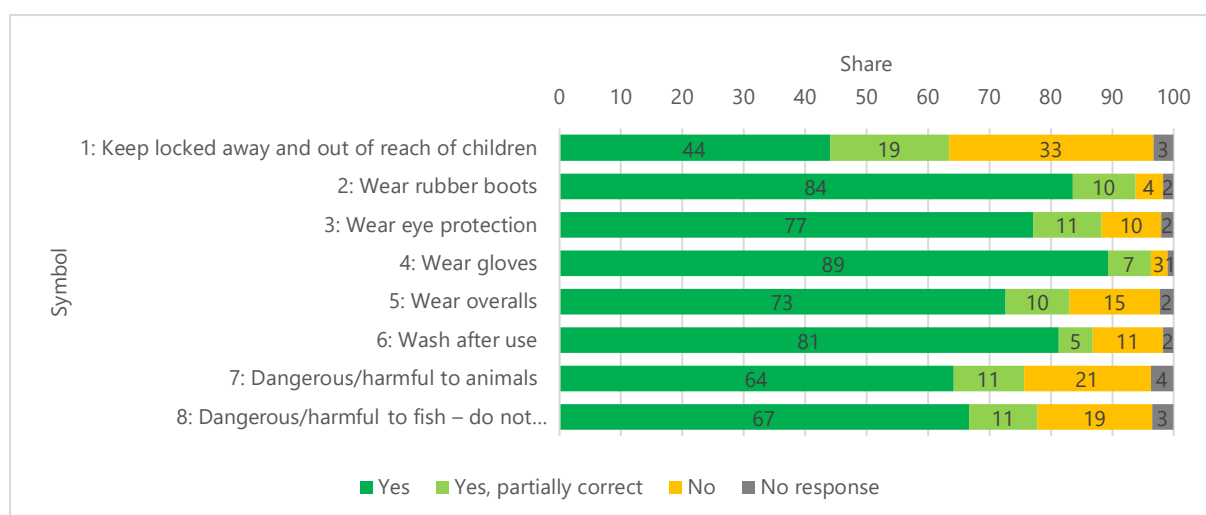
FAW: Fall army worm

Supplementary Table ST 13: Original questions to Figure 5

Column	Original Question
First	"We are now coming to a section where we talk about *what you say* when selling pesticides. Please answer with yes or no. Do you generally offer *any* pest and disease advice to farmers? Do you give suggestions about *which chemicals to buy* when farmers buy pesticides? Do you give any advice regarding *handling and application* of the product? Do you *explain the label* of the product? Do you mention the possibility of *health effects*? Do you give advice on *personal protective equipment*? Do you mention the possibility of *environmental effects*? Do you give advice on *storage* of the pesticide? Do you give advice on *container disposal*?"
Second	"We are now coming to a section where we would like to know how many of your customers ask for a *specific kind* of advice. How many of the farmers ask you for advice regarding product choice, application procedure, information on the label, health effects, PPE, environmental effects, storage of pesticide, container disposal" Answer options: None (0%), Some (25%), Half of them (50%), Most of them (75%), All of them (100%), Don't know. Displayed here: Sum of answers for 50% or more.
Third	"Which topics were discussed during the sales procedure *overall*?" followed by "Who *initiated* the conversation regarding each of the following topics
Fourth	"Did the agro-input dealer give you advice WITHOUT you asking?" If yes: "On what topics did you receive advice?" Probing questions: "How should I protect myself?" and "Is there any other advice you have relate to the product?"

Supplementary Table ST 14: Label colors and areas

Reason for coloring	%
Correct answer: Hazard color band	64.2
Wrong Answer: any answer not indicating hazard, risk, toxicity, etc.	14.4
Don't know	20.9
No response	0.5
What color do you see?	%
Red	97.8
Any other color	0.5
Don't know	1.7
What is the specific meaning of this color?	%
Wrong answers	2.7
General expression such as 'hazardous' or 'dangerous'	46.0
Extremely hazardous	15.2
Highly hazardous	4.0
Very Toxic	6.2
Toxic	7.5
Fatal	1.0
Don't know	16.7
No response	0.8
What other colors could the label have?	%
Red	23.63
Yellow	47.76
Blue	40.3
Green	40.05
Other color	10.2
Don't know	29.35
No response	1.24
What do the other colors indicate?	%
Wrong answers	15.92
Yellow - Moderately hazardous, harmful, toxic	16.92
Blue - Slightly hazardous, caution, (may be) harmful	12.94
Green - Unlikely to present acute hazard in normal use, not classified	12.69
Don't know	62.44
No response	3.98
Please explain the difference between the two areas with similar symbols	%
Wrong answers	19.4
Correct Answer: left side: 'Necessary PPE for *handling* the product', right side 'Necessary PPE for *applying* the product'	19.4
Partially correct answer: 'Necessary PPE for the product'	14.4
Partially correct: left side: 'Necessary PPE for *handling* the product'	4.5
Partially correct: right side: 'Necessary PPE for *applying* the product'	2.0
Don't know	38.1
No response	2.2



Supplementary Figure SF 4: Hazard symbol identification

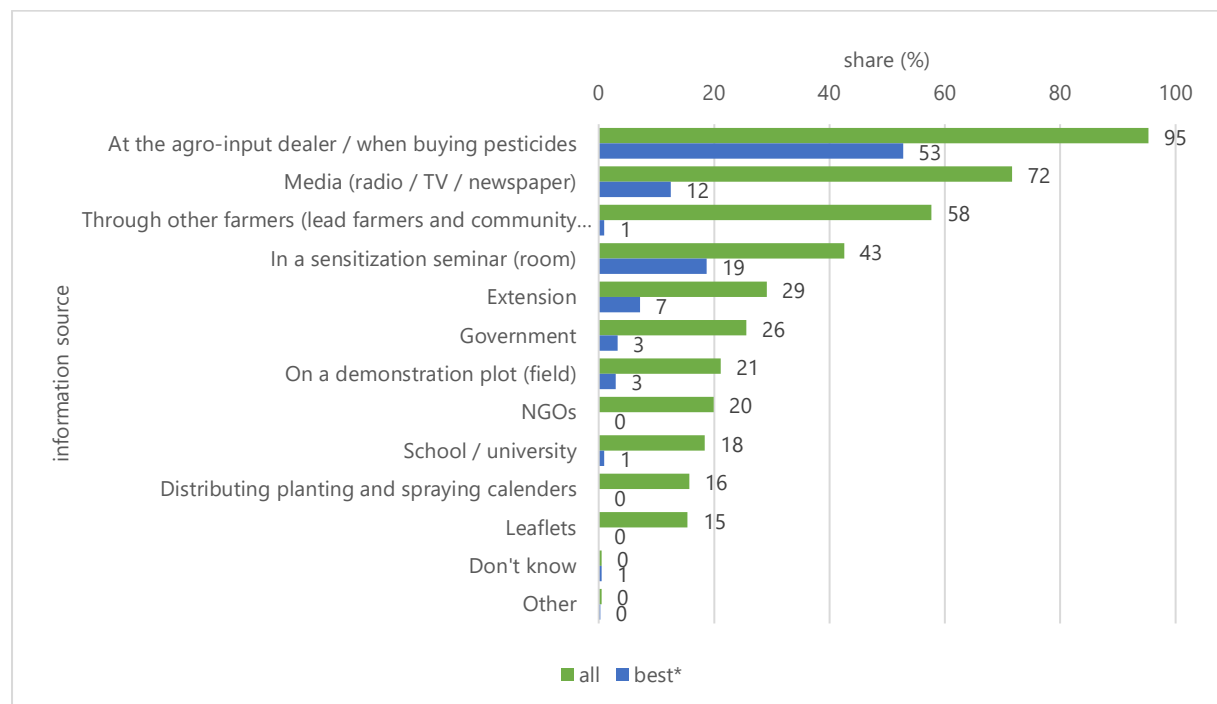
Supplementary Table ST 15: Brands mentioned as best, second or third selling product.

Brand name	n	%	Corresponding active ingredient	Group*	WHO Class
2,4-D	30	7.5	2,4- (Dimethyl) amine 720g/l	H	II
Ametryne	8	2.0	Ametryn 500g/l	H	II
Force Up	16	4.0	Glyphosate 480g/l	H	III
Weedmaster	159	39.6	Glyphosate 500g/l	H	III
Cyperlacer	52	12.9	Cypermethrin 50g/l	I	II
Dudu Acelamectin	202	50.2	Abamectin 1.8% + Acetamiprid 3%	I	Ib/II
Dudu Cyper	74	18.4	Cypermethrin 50g/l	I	II
Dudu Fenos	17	4.2	Profenofos 400g/l + Cypermethrin 40g/l	I	II/II
Lava	61	15.2	Dichlorvos 1000g/l	I	Ib
Profecron	14	3.5	Profenofos 400g/l + Cypermethrin 40g/l	I	II/II
Rocket	187	46.5	Profenofos 400g/l + Cypermethrin 40g/l	I	II/II
Striker	24	6.0	Lambdacyhalothrin 106g/l + thiomethoxam 141g/l	I	II/II
Tafgor	56	13.9	Dimethoate 400g/l	I	II
Dithane	15	3.7	Mancozeb 800g/kg	F	U
Fangocil	13	3.2	Mancozeb 640g/kg + Metalaxyl 80g/kg	F	U/II
Indofil	66	16.4	Mancozeb 800g/kg	F	U
Other	177	44.0	-	-	-
Don't remember	0	0.0	-	-	-
Don't Know	9	2.2	-	-	-
No response	19	4.7	-	-	-

*Group corresponds to the chemical groups H for herbicide, I for insecticide and F for fungicide.

Supplementary Table ST 16: Corresponding active ingredients to best, second or third selling product

Active ingredient	WHO Class	n	%
2,4-Dichlorophenoxyacetic acid	II	10	0.8
Abamectin	Ib	15	1.2
Abamectin + Acetamiprid	Ib/II	49	4.1
Acetamiprid	II	3	0.2
Cypermethrin	II	108	9.0
Cypermethrin + Profenofos	II/II	95	7.9
Dichlorvos	Ib	37	3.1
Dimethoate	II	46	3.8
Glyphosate	III	121	10.0
Lambda cyhalothrin	II	5	0.4
Lambda cyhalothrin + Thiamethoxam	II/II	5	0.4
Mancozeb	U	47	3.9
Profenofos	II	20	1.7
Thiamethoxam	II	1	0.1
Other	-	24	2.0
Don't remember	-	38	3.2
Don't Know	-	555	46.1
No response	-	26	2.2
Total		1205	100



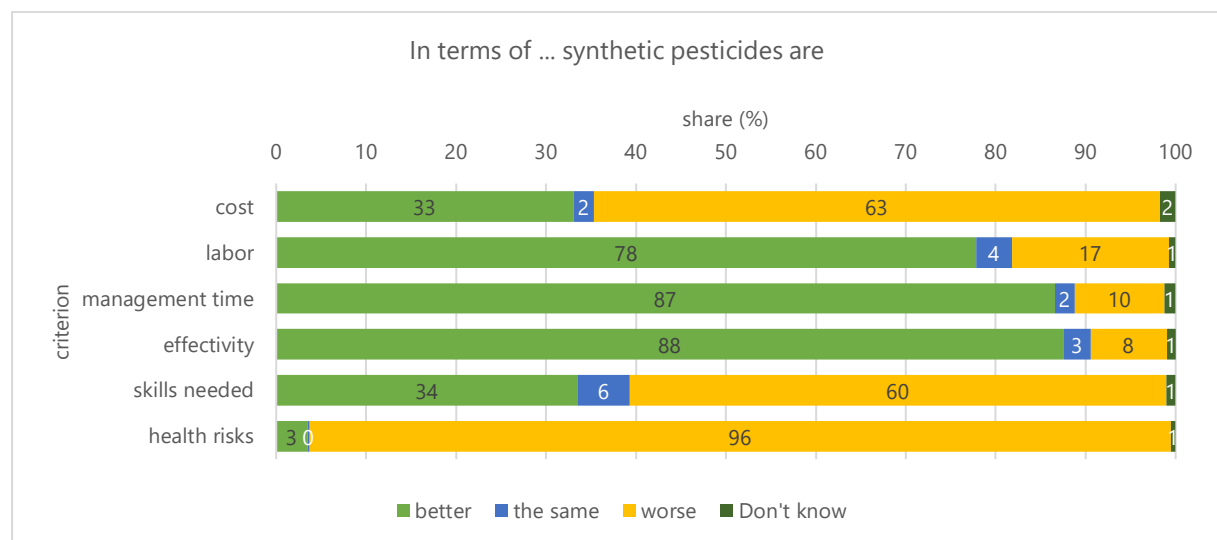
Supplementary Figure SF 5: Information sources of farmers according to agro-input dealers; best* indicating: "the best way to inform farmers about safe pesticide use". All options were read out.

Supplementary Table ST 17: Agro-input dealers' attitudes regarding license, counterfeits and management of pest resistance

Do you consider the license relevant? (%Yes)	88.1
Why?	%
Enables business according to regulation	50.8
Enables tax payment	20.7
Quality assurance to the customer	19.9
Enables occupational safety	19.9
Enables Business Promotion	5.0
Other	1.7
Don't Know	5.7
No response	4.2
119) What are the biggest problems with counterfeits?	%
They are less or not effective	73.9%
They negatively impact the farmer's business	55.5%
They negatively impact the agro-dealer's business	45.3%
They negatively impact human health	14.4%
They negatively impact on the environment	10.4%
Other	1.6%
Don't know	0.5%
No response	0.3%
121) What do you do in your business to prevent and manage pest resistance?	%
Better advising the farmer	33.8%
Recommending stronger pesticides to the farmers	23.6%
Better consulting with the supplier	19.9%
Buying more specific (targeted) pesticides from suppliers	14.9%
Buying different pesticides from the suppliers (pesticide rotation)	13.4%
Recommending different pesticides to the farmers (pesticide rotation)	11.9%
Recommending more specific (targeted) pesticides to the farmers	11.4%
Buying stronger pesticides from the suppliers	9.0%
Other	1.7%
Don't know	0.7%

Supplementary Table ST 18: Alternatives to synthetic pesticides and their limitations

	%
Agro-input dealers aware of alternatives to synthetic pesticide pest management	78.4
Alternative options	%
Cultural/ ecological (sanitation, tillage, crop spacing, crop rotation, push-pull)	58.9
Chemical (biopesticides / natural pesticides / organic pesticides)	36.3
Biological (release/promotion of natural enemies)	27.1
Mechanical (hand picking of insects or weeds, protective covers like insect nets)	25.2
Host plant resistance (crop variety less vulnerable to pest attack)	6.7
Behavioral (pheromone/hormone traps)	5.7
Other	0.6
Limitations to alternative options	%
Less effective against pests	53.8
Time consuming / Labour intensive	47.8
More expensive	14.3
Knowledge and skill demanding	12.1
Materials not readily available	11.1
Difficult to mix	6.4
Can't be easily used on large scale	5.7
Smell from materials	1.9
Mainly preventative than curative	1.3
Some irritate eyes and skin	1.3
Other	4.5
Don't know	4.5
No response	1.6



Supplementary Figure SF 6: Comparison of synthetic pesticides with alternatives to them

Supplementary Table ST 19: Recommendations and corresponding reasons

	n	Yes (%)	No (%)
Recommending pesticide use over alternative strategies	402	68.7	31.3
Reasons for recommendation			
Synthetic pesticides are more effective and work faster	200	90.5	9.5
For economic reasons (time, money)	112	92.9	7.1
To protect the human health	100	20.0	80.0
To protect the environment (e.g., sustainability)	73	21.9	78.1
Because it is more practical and easy	51	96.1	3.9
Source of income	10	100.0	0.0
Alternatives not known/available	9	88.9	11.1
Higher Yield	7	100.0	0.0
For cultural or traditional reasons	4	50.0	50.0
Other	4	75.0	25.0
Don't know	2	50.0	50.0

Supplementary Table ST 20: Symptoms of pesticide poisoning recalled (known) or experienced.

	Experienced (%)	Known (%)	Ratio
Skin irritation	22.4	57.2	0.39
Headache	29.1	44.0	0.66
Itchy eyes	11.4	37.3	0.31
Vomiting	5.7	33.3	0.17
Respiratory difficulties	23.6	29.1	0.81
Abdominal pain	7.5	25.1	0.30
Dizziness	11.2	19.9	0.56
Nausea	11.7	19.2	0.61
Other	4.7	17.2	0.28
Muscular weakness	6.0	9.2	0.65
Chest pain	5.0	7.5	0.67
Extreme tiredness	5.5	6.7	0.81
Blurred vision	2.2	4.2	0.53
Dry mouth	2.0	3.0	0.67
Back pain	2.0	3.0	0.67
Salivation	0.7	2.7	0.27
Loss of appetite	2.2	2.7	0.82
Excessive sweating	2.0	2.5	0.80
Trembling hands	1.2	1.7	0.71
Lack of coordination	0.7	1.2	0.60
Speech difficulty	0.2	1.0	0.25

Supplementary Table ST 21: Through which body parts do you think pesticides can enter us?

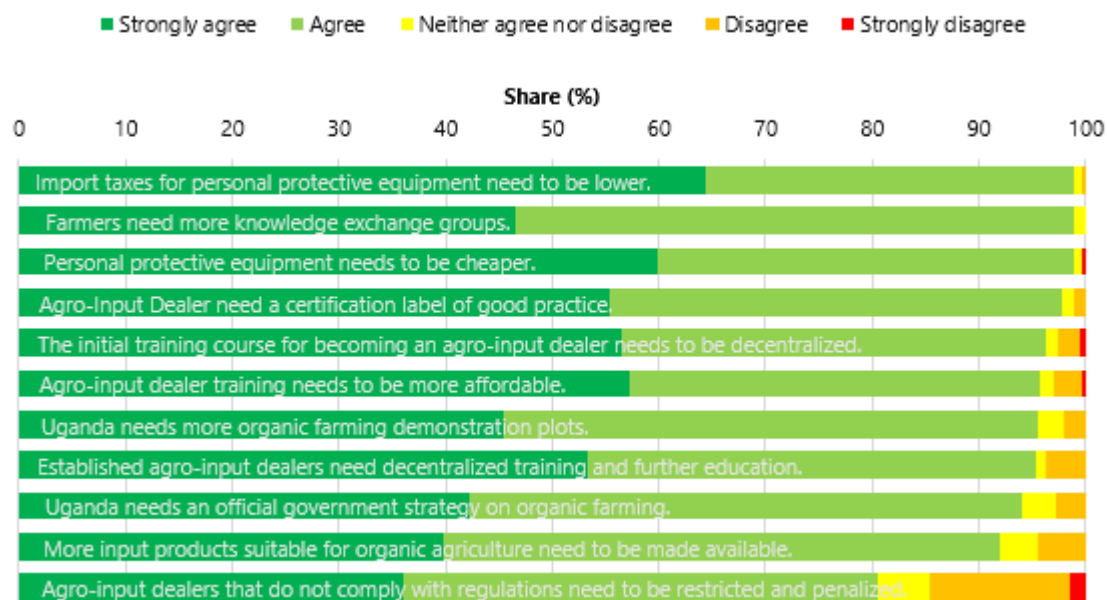
body party entry site	%
Nose (inhalation)	92.5
Skin (dermal)	88.3
Mouth (ingestion)	78.4
Eyes (mucous membranes)	60.4
Ears	28.9
Other	1.5
Don't know	0.5
None	0.2

Supplementary Table ST 22: Pesticide trends over the past and future five years within community

	Increasing	Constant	Decreasing	Don't know
past	91.0	2.5	3.0	3.5
future	86.8	1.5	5.2	6.5

Supplementary Table ST 23: Reasons for pesticide trends

Can you give a reason for this trend?	
Number of farmers increased/decreased	31.1
Pesticides are required to obtain good/any harvest at all	22.1
Abundance of pest organisms increased/decreased	14.9
Pesticides reduce labour	8.0
Pesticides are effective	3.7
Other	3.2
Organic farming increases/decreases	2.5
Pesticides are advertised/farmers are a	2.0
Pesticides increase yield	1.7
Agriculture modernizes	1.7
Farmers are sensitized about negative e	1.7
Don't Know	1.7
Pesticides are cheaper	1.5
Weather / Climate Change	1.2
soils aren't fertile	1.0
Farms are bigger	0.8
Counterfeits increase	0.5
No response	0.5

*Supplementary Figure SF 7: Attitudes regarding future possible change in the pesticide sector in Uganda.*

Supplementary Table ST 24: What companies are you subscribed to receive regular messages with business-related information on your mobile phone?

Bukoola Chemicals Industries Ltd	35.8%
Wefarm	22.8%
various verified Agrodealers	21.6%
East African Seed (U) Ltd	14.2%
Daps Distribution Co.Ltd	11.1%
various unverified Agrodealers	11.1%
Jubilee Insurance Company of Uganda Ltd	9.9%
NGOs and Government	6.8%
No response / Don't remember / Don't know / Unrelated answers	7.4%

Supplementary Table ST 25: Detailed safety equipment layout

Is there any safety equipment available for staff?	%
nothing available (not visible)	61.2
hat	3.1
goggles or face shields for eye and face protection	4.6
specific or all-purpose gas masks	9.4
respirators	9.4
long-sleeved, buttoned coat or suit completely covering the worker	11.2
gloves (water-proof and impervious)	18.1
boots	15.6
Which of the following facilities are available in the shop to wash eyes or remove toxic materials from the skin?	%
nothing available (not visible)	41.1
facilities for washing eyes such as fixed or portable eye-wash fountains.	0.5
adequate emergency water supply for washing off corrosive or toxic materials getting on the skin	0.5
Water Bucket	42.6
Soap / detergent	29.9
Tap Water outside shop	15.6
Tap Water inside shop	8.7
Which of the following materials are available to cleanup and decontaminate spills?	%
nothing available (not visible)	41.8
broom	56.6
inert absorbent material such as sand, soil or sawdust	1.3
disposable container	2.3
hydrated lime or soda ash	0.3
clay or similar material for absorbing scrubbing liquid	1.8