



final report

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A training video on knife sharpening and maintenance for slaughtermen in export destinations

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Abstract

In this instructional video, Sam the Slaughterman demonstrates his knife sharpening technique and some secrets on how he gets all of his knives razor sharp with an enduring edge in just a few minutes before he starts work in the morning. The techniques shown will be of benefit to slaughtermen in live export markets slaughtering Australian cattle, goats and sheep and assist compliance with the Export Supply Chain Assurance Scheme.

Executive summary

Blunt knives used to slaughter Australian livestock in live export markets were identified as a potential risk to animal welfare and compliance with the OIE animal welfare code and the Live Export Supply Chain Assurance Scheme (ESCAS). Consequently it was decided to produce an instructional video in five languages, Urdu, Arabic, Tagalog, Indonesian and English, for use as an education and training tool.

A 17 minute, eight chapter video was produced showing a character known as Sam the Slaughterman (acted by knife sharpening expert Tristan Jubb) demonstrating his freehand knife sharpening technique. The technique is a simple proven one, uses simple equipment and if the steps are followed, the consistent result will be knives with razor sharp durable edges. The video also emphasises hygiene, proper use, maintenance and storage of knives and sharpening equipment.

The early morning pre work scenario, repetition of technical content, simple tools and varied pace of the video caters for the often limited education and sharpening resources of overseas slaughtermen with the intention that improved sharpening techniques and sharper knives become incorporated into everyday slaughter practices.

1. Background

MLA staff and consultants in overseas markets receiving Australian livestock identified a need to provide guidance to slaughtermen for knife sharpening and maintenance. Additionally, the new ESCAS¹ requires exporters to ensure that their supply chains comply with DAFF guidance on meeting OIE animal welfare outcomes. In particular, people responsible for the slaughter of livestock must comply with:

- the statement in OIE Code 7.5.9: *“where stunning is not performed prior to slaughter, the neck cut (“sticking”) is to be performed as a single cut with a freshly sharpened knife’, and*
- the Live Export Supply Chain Assurance and Welfare Standard’s checklist elements 5.17- 5.20 and 6.11-6.14 developed by the Australian Government: *knives are sharpened before beginning the slaughter operation and between animals; knife used for slaughter is long enough to sever both carotid arteries; the throat is cut using a single, deep, uninterrupted fast stroke of the knife; the cut produces massive pulsatile bleeding from both carotid arteries.*

In order to comply with these requirements it is essential that an appropriate knife is used, it is razor sharp and it is maintained properly. It was also considered important that slaughtermen be trained to use a standard but simple technique using standard but simple equipment. It was decided that an instructional video would be a useful tool achieving these outcomes and improved animal welfare at point of slaughter for Australian cattle, sheep and goats in live export destinations, and improved compliance with the OIE animal welfare codes and the Australian Government’s Live Export Supply Chain Assurance and Welfare Standards.

Dr Tristan Jubb of Livestock Health Systems Australia Pty Ltd was selected to develop the video. As part of his consulting business, Tristan runs training courses on knife sharpening and maintenance, mainly for veterinarians and post mortem room technicians. In the recently published MLA video on “Protocol for performing a bovine necropsy in the field”, Tristan assisted in the production of the chapter on *How to sharpen a knife* by writing the script and performing the demonstration. Tristan also works in live export destinations and was familiar with the techniques and equipment used to slaughter exported Australian cattle.

2. Project objectives

The project objectives established by MLA were quite specific:

1. Develop a training video for knife sharpening and maintenance not longer than 20 minutes duration with translated voice-over into Indonesian, Tagalog (Philippino), Arabic and Urdu (Pakistani).
2. It must:
 - a. be appropriate for slaughtermen slaughtering cattle, sheep and goats
 - b. show free-hand sharpening techniques using basic equipment that results in a razor sharp knife
 - c. show methods for hygienically maintaining knives and sharpening equipment

The intended outcomes of the training video are (i) improved animal welfare at point of slaughter for Australian cattle, sheep and goats in live export destinations, and (ii) improved compliance with the OIE animal welfare codes and the Australian Government’s Live Export Supply Chain Assurance and Welfare Standards at live export destinations.

3. Method

¹ Export Supply Chain Assurance Scheme

Tristan Jubb partnered with Sedgwick Video Productions² and Australian Multi Lingual Services³ to produce the video and convert into multi language DVD format. Tristan Jubb wrote the script (a copy of which is in the appendix of this report) and developed the animations. Sedgwick Video Productions provided the sound, camera and editing services. Australian Multi Lingual Services translated the English language script into four other languages: Urdu, Arabic, Tagalog and Indonesian, and provided time-coded recordings of each as wav files for insertion into the video. Filming was conducted in a training facility in Bendigo made available by the Department of Primary Industries, Victoria. The neck sticking scene was provided by MLA. The project was initially overseen by David Beatty, MLA's Live Export R&D Manager at the time. Sharon Dundon who replaced David, oversaw the completion of the project. Feedback on a draft video was provided by David Beatty and MLA staff based in Indonesia and changes incorporated into the final version.

4. Results

The final DVD, voiced-over in five languages, features a character "*Sam the Slaughterman*" who arrives for work at the slaughterhouse early in the morning where his first task is always to sharpen his knives ready for the day's work. He then reveals to an observant commentator behind the camera his tips and tricks on how to get his knives razor sharp.

The script is 2219 words. The final video is of 17 minutes duration with 8 chapters:

1. Introduction
2. Setting up for success
3. The sharpening process
4. Sam's secrets to sharpening success
5. Sam's steel secrets
6. Testing for sharpness
7. Sam's knives
8. Sam's cleaning and maintenance tips

5. Discussion and conclusions

The methods shown in the video reflect modern sharpening theory and should, if followed closely, generate consistently razor-sharp knives with durable edges. The video methods give consideration to the often limited resources available to, and the often limited education of slaughtermen. Therefore, knives will probably be much sharper and sharpness more easily and quickly achieved than existing in-market methods. The video should be meaningful and useful in destination countries and the methods shown, able to be integrated into everyday slaughter practices. This will support improved animal welfare at point of slaughter for Australian cattle, sheep and goats in live export destinations, and improved compliance with the OIE animal welfare codes and the Australian Government's Live Export Supply Chain Assurance and Welfare Standards..

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6. Appendix: Knife sharpening and maintenance video script

How to sharpen a knife – the secrets of Sam the Slaughterman

Para	Words	Time (s)	Voice	Vision
1.	1	1	Introduction	
2.	25	17	Here's Sam the Slaughterman. It's early in the morning and he has just arrived at the slaughter house and is getting ready to start work.	Tristan dressed disguised as <i>Sam the Slaughterman</i> in white cap, white coat/overalls, white apron, white boots entering the room and putting on his butchers belt with knives and steel. Face paint to accentuate smile and blacken facial hair ie moustache and goatee and five o'clock shadow.
3.	6	4	Say hello to the camera Sam	Sam looks up and with a big smile waves hello to the camera.
4.	12	8	Sam likes to have his knives razor sharp before he starts work.	Quickly slicing edge of paper multiple times to show razor sharp knife
5.	18	12	He has some tricks to make his knives razor sharp in a few minutes before he starts work.	Sam feeling edge of knife then placing it in scabbard
6.	13	9	Let's watch how Sam sharpens his knives and see the equipment he uses.	Sam beckoning to camera to come with him
7.	4	3	Setting up for success	
8.	6	4	Here's Sam setting up his equipment.	Sam walks into view and empties bag of sharpening equipment on to table
9.	29	19	There's a sharpening stone, a non-slip mat, a marker pen, a magazine, paper towel, nail brush, sandpaper, a piece of leather, liquid detergent. I wonder what these are all for?	Equipment being picked up and placed neatly in a row in the middle of the table. Shots of each item.
10.	20	13	Sam's knives are in a scabbard and his sharpening steel hangs from a plastic holder on his plastic chain belt.	Shots of butchers belt around Sam's waste including close-ups of scabbard and steel in holder
11.	11	7	He's laying out the non slip mat along the table edge.	Laying out non slip mat with care lining it up against the edge of the table
12.	20	13	Sam likes the large silicon carbide stones that are medium grit on one side and fine grit on the other.	Sam pulling the sharpening stone out of the sock. Close-up showing double-sided nature of the stone
13.	27	18	He usually only uses the fine side. He only uses the medium grit side if the knife is very blunt and lots of metal must be removed.	Close-up of stone with Sam stroking one side then the other of the stone with his fingers to feel the different grits Close-up of stone showing finer grit side is up
14.	14	9	He's placing the sharpening stone on the mat along the edge of the table.	and laying out the sharpening stone with care on mat aligning along side of table
15.	36	24	As Sam sharpens his knife we will be referring to different parts of the blade. These are the spine, the blade face, the bevel, the straight edge, the curved edge and the tip and the heel.	Sam pointing to different parts of the blade in turn from spine to edge then tip to heel Shots of pointing to: <ul style="list-style-type: none"> • spine, • blade face, • bevel, • straight edge, • curved edge • tip

				• heel.
16.	3	2	The sharpening process	
17.	15	10	Look, Sam has started sharpening his knife. He's marking the blade. I wonder what for?	Sam leaning over knife on bench with glasses on marking the knife with a permanent ink pen
18.	26	17	He's using the fine side of the sharpening stone and is moving the knife edge up and down the length of the stone, pressing quite firmly.	Sam sharpening away grinding a new edge. Mid shot and close-up shots. Cut away to face showing concentration.
19.	10	7	He's stopped and is looking at the knife very closely.	After a few strokes Sam stops and inspects the bevel closely with glasses on.
20.	17	11	He seems satisfied and starts stroking the knife up and down the length of the stone again.	Sam nods approvingly and continues sharpening.
21.	25	17	After every dozen or so strokes, Sam looks at the bevel and rubs his thumb over the edge along the full length of the blade.	Sam inspecting bevel and then rubbing thumb over edge along length of blade.
22.	15	10	See how he lifts the handle when he is sharpening the curved edge and tip.	Sam sharpening curved edge and tip with handle elevated.
23.	12	8	He then flips the knife over and starts sharpening the other side.	Shot of knife being flipped over
24.	16	11	After a few strokes he checks the bevel. He seems satisfied and continues on, pressing firmly.	Mid shot of quick check of bevel, nods approvingly and continues on.
25.	15	10	See again how he lifts the handle when sharpening the curved edge and the tip.	Mid shot of action to sharpen tip and curved edge.
26.	23	15	He's looking at the bevel and rubbing his thumb over the edge. He's nodding with a satisfied smile. Things must be going well.	Sam looking at bevel, feeling edge, then nodding approvingly at camera, smiling, thumbs up gesture
27.	27	18	Sam has resumed sharpening. He's doing it differently. The strokes are lighter in pressure and instead of up and down strokes, he's just leading with the spine.	Sam starting honing stage by doing diagonal spine leading strokes. Mid shot then close-up of spine leading stroke. Cut away to face showing concentration.
28.	14	9	He does a few strokes on one side then stops and feels the edge.	Mid shot of Sam stopping to feel along the edge. Cut away to face showing concentration.
29.	23	15	Then does a few strokes on the other side of the knife and again feels the edge. I wonder what he's feeling for?	A few strokes then again feel along edge.
30.	13	9	He does this a few times, flipping the knife over every few strokes.	Mid shot of Sam busy honing away with diagonal strokes, flipping the knife over regularly.
31.	22	15	Notice he's using diagonal strokes starting at the tip and using the length of the stone finishing the stroke at the heel.	Using diagonal strokes the length of stone
32.	14	9	See how he lifts the handle when sharpening the curved	Handle lifted for curved edge and tip

			edge and the tip.	
33.	21	14	His strokes are slow now and he seems to be doing them with great care and not a lot of pressure.	Slow careful strokes with light pressure
34.	15	10	He's rubbing the edge again, nodding with a satisfied smile. Things must be going well.	Rubbing edge and nodding with big smile of satisfaction.
35.	19	13	Hmmm, what's Sam doing now? He's laid out a piece of leather and is stroking the knife on it.	Sam laying out leather strip and polishing the edge one side and then the other
36.	24	16	A dozen or so strokes one side then a dozen or so strokes on the other. He's pressing firmly and the strokes are fast.	Close-up of Sam pressing firmly and maintaining the constant sharpening angle. Cut away to face showing concentration.
37.	20	13	He's feeling the edge again, stroking his thumb off the edge of the blade along the length of both sides.	Close-up of feeling first for burr (thumb off the edge) along both sides of knife
38.	22	15	Now he's feeling the edge again, but doing it differently. This time stroking his thumb along the edge but onto the blade.	then switching to testing for sharpness (thumb on to the edge) testing entire edge.
39.	11	7	He's nodding and smiling again so things must be going well.	Mid shot of assessing sharpness and nodding and smiling approval.
40.	12	8	Wow! Look at how the knife slices the paper. That's razor sharp!	Sam rapidly slicing the edge off a piece of magazine paper with panache
41.	5	3	Sam's secrets to sharpening success	
42.	15	10	Now, let's review Sam's sharpening technique. Did you notice he did it in three stages? First there were the firm up and down strokes, then the light diagonal strokes leading with the spine, then using the leather	Rapid succession of shots 1. Up and down on stone 2. Light diagonal strokes 3. Using leather
43.	8	5	And did you notice some of his tricks? Like the ink marks, the way he gripped the blade and even how he flipped the knife over from side to side	Rapid succession of shots 1. Making ink marks 2. Gripping the blade 3. Flipping the knife over
44.	42	28	The first stage was grinding a new edge. Sam put an ink mark on the bevel. It's a visual guide for Sam to check that he is removing metal in the correct places at the correct angle, and creating a new edge.	Mid shot of Sam marking bevel then close-up shot of ink mark on bevel (using previous shots if possible)
45.	35	23	When Sam stopped and looked at the knife after the first few strokes he was checking the wear of the ink mark on the bevel to make sure he was using the correct sharpening angle.	Sam stopping and looking at bevel (using previous shots if possible)
46.	10	7	Sam knows the importance of maintaining a constant sharpening angle.	Close-up of sharpening stroke

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47.	19	13	He sharpens all his knives at a 15° sharpening angle. This angle makes the edge both sharp and strong.	Stroke stops and insert graphic lines of angle showing 15° overlay the stopped stroke.
48.	13	9	Sam marked a quarter-width on the blade face to serve as a guide	Sam marking the blade at quarter widths
49.	17	11	... because raising the spine one quarter of the blade width from horizontal gives a 15° sharpening angle.	Close-up of spine being raised with quarter width marks in view.
50.	29	19	Sam uses a few other tricks to maintain a constant sharpening angle. He grips the knife blade with a thumb and finger tips on the spine and blade face.	Close-up of gripping the knife blade with thumb and finger tips.
51.	22	15	And he uses mainly long straight strokes along the length of the stone. These give maximum control and repeatability of each stroke.	Close-up of long straight strokes.
52.	13	9	During the stroke he watches the spine of the blade not the edge.	Close-up of the spine during strokes both sides of knife as Sam would be viewing the spine
53.	22	15	Sam knows that watching the edge can cause the sharpening angle to increase, so he continually reminds himself to watch the spine.	Close-up of Sam's eyes Cut to blade spine again
54.	24	16	Sam will use these tricks throughout the entire sharpening process because he knows how important it is to always keep a constant sharpening angle.	Close-up of front side and rear of strokes of constant sharpening angle
55.	17	11	Sam knows that a common sharpening mistake is not removing enough metal to create a new edge.	Animated graphic series showing removal of metal required to create new edge.
56.	30	20	He knows a new edge has been created when he can feel a burr present. The burr is the metallic debris that is pushed up along a newly formed edge.	Graphic of arrow running along burr on edge. Animations of how burr is formed
57.	32	21	As well as using the wear of the ink mark on the bevel as a guide, Sam feels for burr along the edge to tell when a new edge has been created.	Close-up of abraded ink mark then mid shot of Sam feeling for burr.
58.	15	10	With experience, Sam has become very good at detecting burrs with his thumb finger print.	Mid shot of Sam feeling for burr
59.	28	19	If burr is present, Sam can feel the burr catch on the finger print of his thumb as he rubs his thumb off the edge of the blade.	Close-up of Sam's thumbprint rubbing off edge
60.	14	9	He can detect very fine early stage burrs which are too small to see.	Sam feeling for burr, concentrating with his eyes closed looking away.
61.	26	17	Sam will only move on to	Mid shot showing Sam stopping grinding

			the next sharpening stage when he has felt a burr along the entire edge when each side has been sharpened.	and quickly feeling for burr along entire edge of one side of knife
62.	20	13	Stage two of Sam's technique is to remove as much of the burr as possible in a process called honing.	Shots of Sam doing slow, careful, diagonal honing strokes.
63.	24	16	He knows how important it is to remove the burr and how it is a common mistake to not recognise and remove the burr.	Sam nodding in agreement.
64.	18	12	If the burr is not removed, it will break off during cutting and the edge will become blunt.	Graphic animation of burr breaking off and edge becoming blunt.
65.	25	17	Sam's long diagonal one-way strokes leading with the spine, regularly flipping the knife over from one side to the other, were to reduce the burr.	Show previous shots of Sam doing spine leading diagonal shots and flipping knife over regularly.
66.	25	17	The careful light pressure strokes Sam was doing toward the end of the honing stage were to reduce the burr down to its last remnants.	Show previous shots of Sam doing <u>slow, careful, diagonal</u> honing strokes.
67.	13	9	But Sam knows that the burr cannot be completely removed with the stone.	Sam feeling for burr and nodding his head from side to side indicating could be better.
68.	20	13	The honing stage is completed when Sam has removed as much of the burr as he can on the stone.	... then pushing/putting stone away and reaching for the leather.
69.	31	21	Stage three is polishing the edge. By polishing the edge on the leather Sam is able to achieve an extra level of sharpness unable to be achieved using just the stone.	Sam polishing the knife edge on the leather strop then moving to ...
70.	10	7	Polishing reduces the jaggedness along the edge including any remnants of the burr.	Animated graphic series showing jagged edge transforming to become a smooth polished edge.
71.	19	13	The edge then becomes razor sharp and longer lasting.	Close-up of paper being sliced rapidly.
72.	3	2	Testing for sharpness	
73.	31	21	Did you see how Sam tested for sharpness? First, he always checks for burr. Sam knows how easy it is, especially for beginners, to mistake a burr for a sharp edge.	Sam checking both sides of edge along length of blade for burr showing thumb being dragged off the edge.
74.	32	21	Once he is confident that no burr remains, Sam tests for sharpness by rubbing his thumbprint carefully on to the edge in the opposite direction that he would use for detecting burr.	Same shot as previous burr-detecting-shot but this time with Sam assessing sharpness by rubbing thumbprint onto edge in opposite direction.
75.	12	8	With experience Sam knows	Sam feeling sharp edge and nodding

			how a sharp edge feels on his thumbprint.	approvingly.
76.	27	18	Sam's final test for sharpness is to slice the edge of the magazine paper. If the edge has nicks, burr or is blunt, the paper will tear.	Sam rapidly slicing multiple strips off edge of magazine paper then stopping and nodding approvingly.
77.	3	2	Sam's steel secrets	
78.	12	8	Did you notice Sam didn't use a steel to sharpen his knives.	Shot of steel in butchers belt holder left untouched and Sam holding his hand up signaling refusal to use it.
79.	10	7	He will however use a steel during his slaughter work.	Shot of Sam looking at camera nodding agreement then moving to close-up shot of hip region with steel going in and out of steel holder on butchers belt.
80.	26	17	Especially with razor sharp edges, the fine edge of the knife will roll over or become bent in places, especially if contacting bone or hard surfaces.	Animated graphic series showing how knife edge can roll over
81.	24	16	Sam uses the steel to straighten the edge if he suspects the edge has rolled or bent. This will usually recover some lost sharpness.	Sam holding and gesturing at steel showing how rolled knife edge can be bent back.
82.	18	12	Sam prefers smooth or mildly grooved steels. He finds they give best results on his razor sharp edges.	Sam fondling smooth/polished steel and nodding approvingly then moving to close-up of smooth steel.
83.	12	8	But they must be used carefully and at the correct sharpening angle of 15°.	Then starting to use steel slowly and carefully in the vertical position.
84.	7	5	He finds that coarsely grooved steels ...	Moving in from whole steel to close-up of section of shaft of a coarsely grooved steel
85.	20	13	...or overuse of a steel ...may remove excess metal and reduce sharpness, especially if the incorrect sharpening angle is used.	Apprentice demonstrating uncontrolled free hand technique. Sam watching and shaking his head indicating not a good idea
86.	28	19	Sam prefers to use a steel by holding it in the vertical position. He will do this by pressing the tip of the steel into a firm base.	Sam using steel in vertical position with end of steel pressed into table.
87.	16	11	This gives him best control to achieve the 15° sharpening angle he needs for his knives.	Close-up shot of 15° sharpening angle
88.	22	15	...or if no firm base is available, by firmly holding it vertically in front of him with elbows pressed into his sides.	Sam holding steel with point in air, looking down shaft, elbows firmly into sides Close-up shot of using steel on both sides of knife at constant sharpening angle.
89.	22	15	He uses light to medium pressure strokes, feeling for sections of the edge generating fine vibrations indicating where the edge is rolled.	Sam with look of concentration on his face stroking with steel, holding knife lightly in three fingers, feeling for bent edge
90.	22	15	Usually four to six strokes	Close-up shot showing four strokes with

			on a rolled section are enough to straighten the edge. More strokes are unlikely to achieve much.	steel on knife
91.	12	8	Sam prefers steels with hard plastic handles and a prominent finger guard.	Sam pointing to plastic handle then finger guard then thumbs up and nodding approval.
92.	20	13	He avoids steels with wooden handles, as just like wooden handles on knives, the wood will absorb moisture and germs.	Then Sam picking up wooden handled steel, pointing to wooden handle and shaking his head.
93.	2	1	Sam's knives	
94.	13	9	Sam has three types of knives depending on the work he must do.	Take slicing and boning knives from scabbard and lay them on table. Then removes skinning knife from protective sheath and lays on the table
95.	21	14	There's a slicing knife with a very long blade, and a skinning knife ... and boning knife with the thinner, shorter blades.	Middle shots moving to close-up of the different knives in turn
96.	28	19	He uses the slicing knife to slaughter large cattle. The animal must be slaughtered with a neck cut using a single, deep, uninterrupted fast stroke of the knife.	Sam doing a couple of air neck cuts with the slicing knife
97.	12	8	The knife must be long enough to sever both carotid arteries ...	Sam admiring the length of the knife holding hands apart like describing a big fish and with thumbs up at end.
98.	13	9	... and produce the rapid bleeding that causes the animal to die quickly.	Animated graphic series or footage of graphics of severed carotid arteries gushing blood
99.	14	9	The skinning knife is used for removing the skin and cutting up the carcass.	Sam performing skinning action with the knife held edge up and then edge down in the fishing rod position.
100.	33	22	It can be used for neck cuts in sheep, goats and smaller cattle but it must be long enough and sharp enough to cut both carotid arteries with a single fast deep stroke.	Hands apart measuring length of knife and shaking head Repeated air neck cuts holding the skinning knife in the stabbing position.
101.	11	7	Sam uses the boning knife to remove meat from the carcass.	Sam play boning (dueling) with the boning knife simulating removing meat from bone. Holding knife in stabbing position.
102.	21	14	Sam is fussy about his knives. He likes brightly coloured plastic non slip handles with a prominent butt and finger guard.	Sam admiring the Swibo knives and showing off (pointing to) the handles with finger guards and butt, banging the butt into the bench to show how they prevent the hand slipping off the handle.
103.	10	7	And he likes stiff, straight, wide blades for easy sharpening,	Sam coveting blade of Swibo knife, then blade face to camera bending blade to show stiffness and width of blade
104.	17	11	... and made of high quality stainless steel that won't rust and will keep a sharp edge.	Using blade as mirror (brushing moustache in reflection)
105.	15	10	He doesn't like wooden handles because they can absorb moisture and allow germs to grow.	Sam handling wooden handled knife of apprentice then putting/pushing it away with disgust and shaking head.
106.	5	3	Sam's cleaning and maintenance tips	

107.	22	15	Did you notice that Sam didn't use oil or water on the stone during sharpening? He never uses lubricants on the stone.	Sam holding up hand at oil can offered by apprentice and looking away shaking his head to indicate no to use of oil.
108.	19	13	Sam likes his stone clean and dry for maximum abrasiveness that allows him to sharpen his knives more quickly.	Sam cleaning and drying his stone with paper towel.
109.	14	9	The only time that Sam puts water on his stone is to clean it.	Sam cleaning stone under running tap water with nail brush from kit with dash of dishwashing detergent squirted on to nail brush
110.	26	17	If the stone is starting to hollow, he'll flatten the surface by rubbing it in a figure 8 pattern on a flat section of concrete floor.	Sam kneeling on concrete floor and with figure 8 motion rubbing stone on concrete floor
111.	25	17	Sam will dry the stone before wrapping it in a thick sock for protection and placing it in his bag with the other sharpening equipment.	Sam drying stone with paper towel, pulling sock over it while holding stone between knees and placing in kit bag
112.	12	8	Sam is very thorough when it comes to caring for his equipment.	Sam looking at the camera nodding in agreement
113.	38	25	At the end of each day he pulls his knife scabbards apart, and with the knives, they all get cleaned using hot soapy water, vigorous rubbing with a stiff brush, rinsing with clean fresh water and thoroughly dried.	Sam disassembling scabbard then washing knives and scabbard in sink/basin with nail brush from kit. Squirted dish washing detergent on to nail brush Steaming coming from water tap and sink.
114.	24	16	He knows that if the equipment is not cleaned and dried at the end of each day that germs can grow on them overnight	Sam drying scabbards using paper towels and reassembling scabbard
115.	17	11	...and any moisture on the knife can cause the fine microscopic edge to rust and become blunt.	Close-up using paper towel to carefully dry the edge of the knife
116.	30	20	Steels are especially prone to rusting, so Sam is careful when cleaning and drying his steel after work. If rust appears, he removes it by rubbing the shaft with sandpaper.	Sam carefully inspecting and drying his steel, spots some rust (shakes head), then picks up some sandpaper and rubs the steel.
117.	22	15	Only after carefully cleaning and drying his scabbard and steel, packing up his kit, and storing it all in a safe place,	Rapid succession of scenes: <ul style="list-style-type: none"> • Cleaning scabbard • Drying steel • Packing up kit • Putting kit in cupboard
118.	19	13	...will Sam allow himself to go home. Good bye Sam! Thanks for showing us your knife sharpening secrets	Sam waves and smiles to camera and walks out the door taking butchers belt off and holding in his hand
119.	2	1	The end	