

modern harvester

modern sag 1 1/30/12

Tries	efficiency	effectiveness
1st	$\frac{10}{20}$	40/100-0
2	$\frac{10}{20}$	95/100-10
3	$\frac{10}{20}$	100/100-30 try be fast
4	$\frac{10}{20}$	70/100-0
5	$\frac{10}{20}$	70/100-0
6	$\frac{10}{20}$	00/100-10
7	$\frac{10}{20}$	60/100-0

Hohokam Harvester

Sag 1 stick + 20 inches
11/30/22

Tries	efficiency	effectiveness
1	$\frac{10}{30}$	75/100-10
2	$\frac{10}{20}$	80/100-0
3	$\frac{10}{20}$	100/100-30. try be fast
4	$\frac{10}{20}$	70/100-10
5	$\frac{10}{30}$	80/100-10
6	$\frac{10}{20}$	90/100-10
7	$\frac{10}{20}$	50/100-10

wobler with wind

harvester bus

modern say 2 5ft 1/30/22

Tries	efficiency	effectiveness
1	1/10 20/20	50/100-0
2	1/10 20/20	80/100-10
3	1/10 20/20	80/100-10
4	1/10 120	80/100-10
	1/10	1
	1/10	1
	1/10	1

hohokam harvester
bush

Aug 2

1/30/22

Tries	efficiency	effectiveness
1	/10 20/20	bu 100-10 held wrong to long
2	/10 20/20	1100- to long
3	/10 70/20	bu 100-10 to long
4	/10 120	80/100-10 to long
	/10	/
	/10	/
	/10	/

hohokam Aug 2 5CA

Modern hatchet

01/22/07

Tries	efficiency	effectiveness							
1 st Pom.	min 13.57 sec	60/100							
2 nd Sug.	min 1.81 sec	90/100							
3 rd Cottilla	min 5.66	60/100	-10	-10	-10	-10			
4 th Refin Prog.	min 4.60	50/100	-10	-20	-10	-10			
5 th Dry Prog.	min 11.01	20/100	-10	-20	-10	-10			
6 th Thick Path	min 20.56	70/100							
7 th	min	/100							

hohokam
or
stone hatchet

V27K2

Tries	efficiency	effectiveness
1 st Run	min 29.85 Sec	50/100
2 nd Sog.	min 6.08 sec	60/100
3 rd Run	min 1.39.9	/100
4 th Oetahill	min 15.49	60/100 -10 -10 -10 -10
5 th Pillbox N238	min 3.66	70/100 -10 -10 -10
6 th Sog N238	min 4.19	70/100 -30
7 th Thick N238	min 9.67	50/100 -50

Thick Run Didn't break record

Harvester R code

```
#add project data
fruit <-data.frame(Type = c(rep("Modern",size=10,11),
                           rep("Hohokam",size=10,11)),
                  try =c(1:7,1:4,1:7,1:4),
                  Efficiency
=c(20/20,18/20,10/20,20/20,20/20,20/20,20/20,20/20,20/20,20/20,
30/30,20/20,20/20,20/20,20/20,20/20,20/20,20/20,20/20,20/20),
                  good =c(40,90,100,70,70,60,60,50,80,80,80,
                          70,80,100,70,80,90,50,60,NA,60,80),
                  bad =c(0,10,30,0,0,10,0,0,10,10,10,
                        10,0,30,10,10,10,10,NA,10,10),
                  saguaro =rep(c(rep(1,7),rep(2,4)),2))

fruit$Effectiveness <-fruit$good-fruit$bad

library(ggplot2)

ggplot(data=fruit,aes(x=Type,y=Efficiency))+
  geom_boxplot(lwd=2,fill="#0D9BBE",outlier.alpha = 0)+
  geom_jitter(width=0.1,size=3,shape=23,fill="black",color="white",height = 0)

ggplot(data=fruit,aes(x=Type,y=Effectiveness))+
  geom_boxplot(lwd=2,fill="#0D9BBE")+
  geom_jitter(width=0.1,size=3,shape=23,fill="black",color="white",height = 0)
```

Hatchet R code

```
#add project data
hatchet <-data.frame(Type = c(rep("Modern",7),
                              rep("Hohokam",7)),
                    try =c(1:7,1:7),
                    efficiency =c(14,2,6,5,11,21,NA,
                                   30,6,100,15,4,19,10),

                    Effectiveness=c(60/100,90/100,60/100,50/100,20/100,70/100,NA,
                                     50/100,60/100,0/100,60/100,70/100,70/100,50/100),
                    wood=c("pomegranate","saguaro rib","ocotillo","rotten
mesquite","dry mesquite","thick pomegranate","thick mesquite",
                           "pomegranate","saguaro rib","ocotillo","rotten
mesquite","dry mesquite","thick pomegranate","thick mesquite"))

library(ggplot2)

ggplot(data=hatchet,aes(x=Type,y=efficiency))+
  geom_boxplot(lwd=1,fill="#0D9BBE",outlier.alpha=0)+
  geom_jitter(width=0.1,size=3,shape=23,aes(fill=wood),height = 0)+
  ylab("time used cutting (seconds)")

ggplot(data=hatchet,aes(x=Type,y=Effectiveness))+
  geom_boxplot(lwd=1,fill="#0D9BBE",outlier.alpha=0)+
  geom_jitter(width=0.1,size=3,shape=23,aes(fill=wood),height = 0)
```