

DESIGN OF EXPERIMENTS (DOE) USING THE “FLEETING” TIME WISELY

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AL-'AŞR

(Revealed before Hijrah)

1. In the name of Allāh, the Gracious, the Merciful.
- * 2. By the *fleeting* Time,
3. Surely, man is in a *state of* loss,
4. Except those who believe and do good works, and exhort one another to *accept* truth, and exhort one another to be steadfast.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
وَالْعَصْرِ
إِنَّ الْإِنْسَانَ لِفِي خُسْرٍ
إِلَّا الَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ
وَتَوَاصَوْا بِالْحَقِّ وَتَوَاصَوْا بِالصَّبْرِ

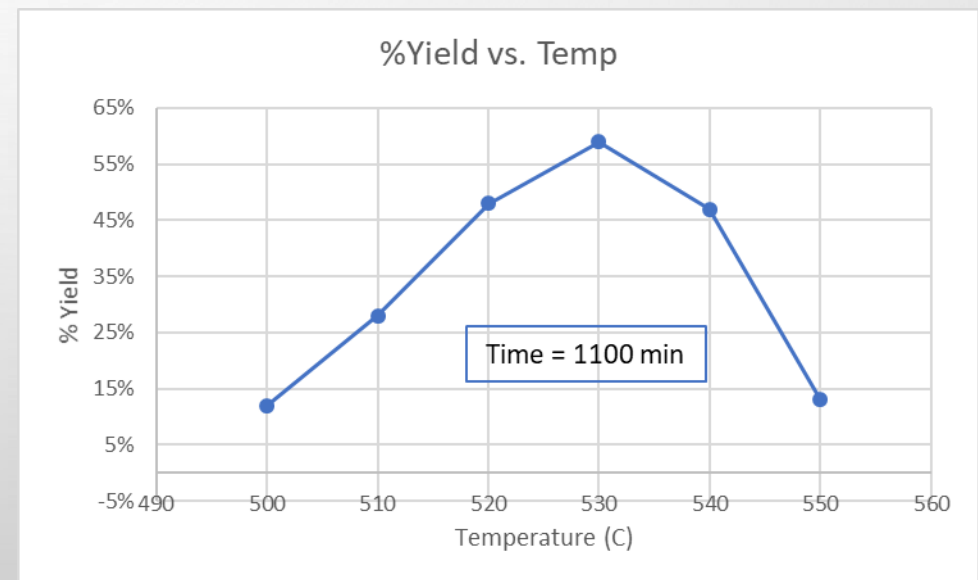
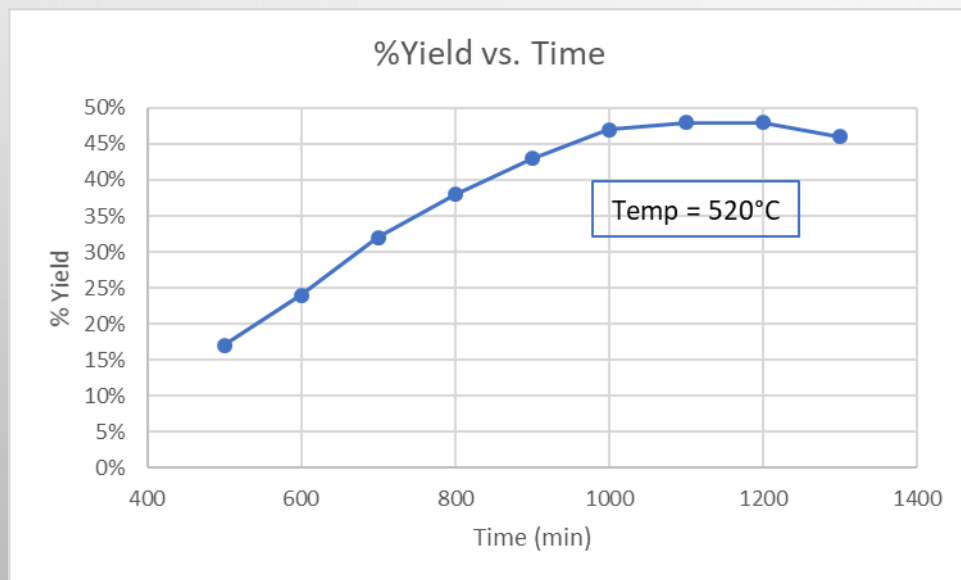


JORGE CHAM © 2013

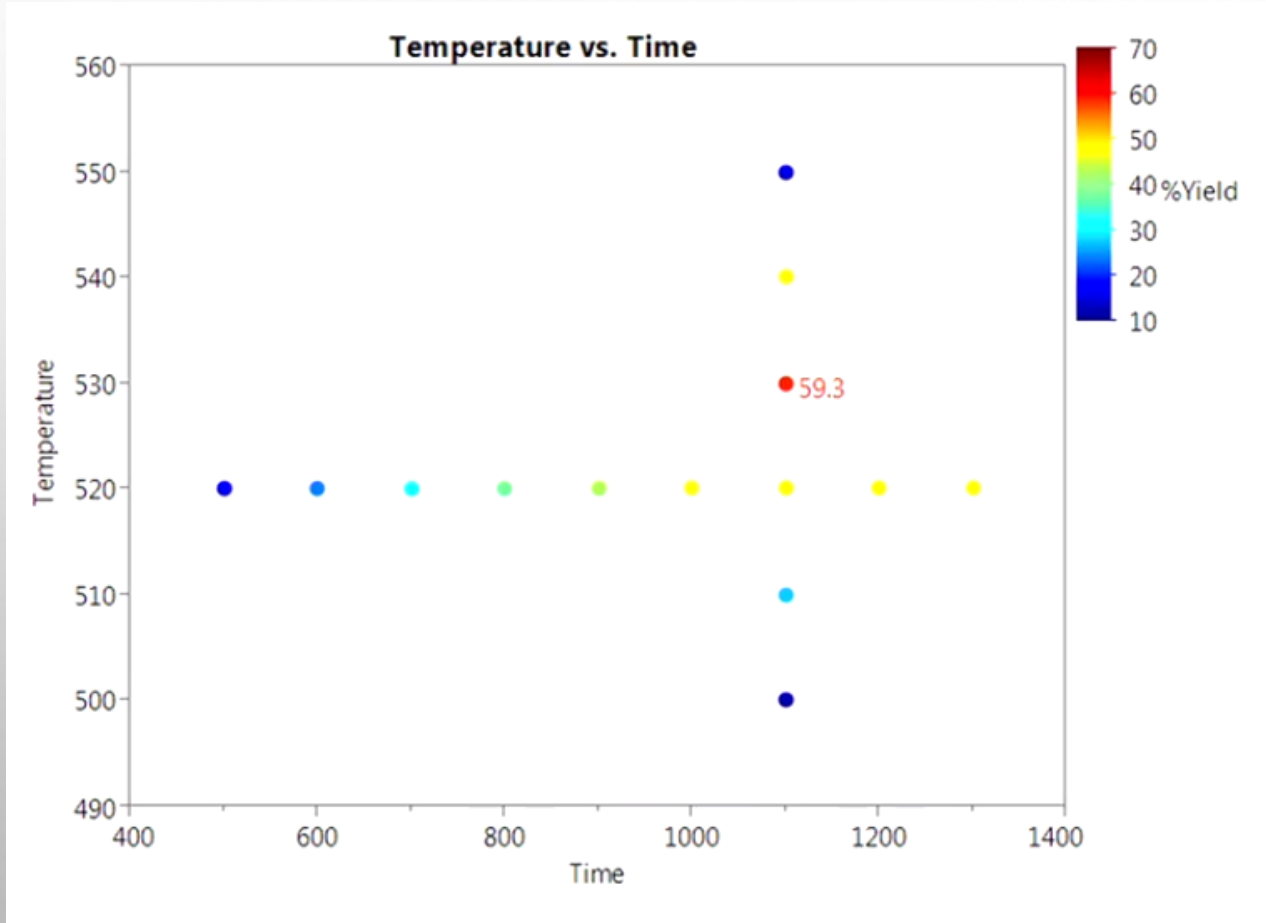
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TYPICAL EXPERIMENTS

- ONE FACTOR AT A TIME
- WHAT IF WE WANT TO OPTIMIZE YIELD, BY VARYING TIME AND TEMPERATURE



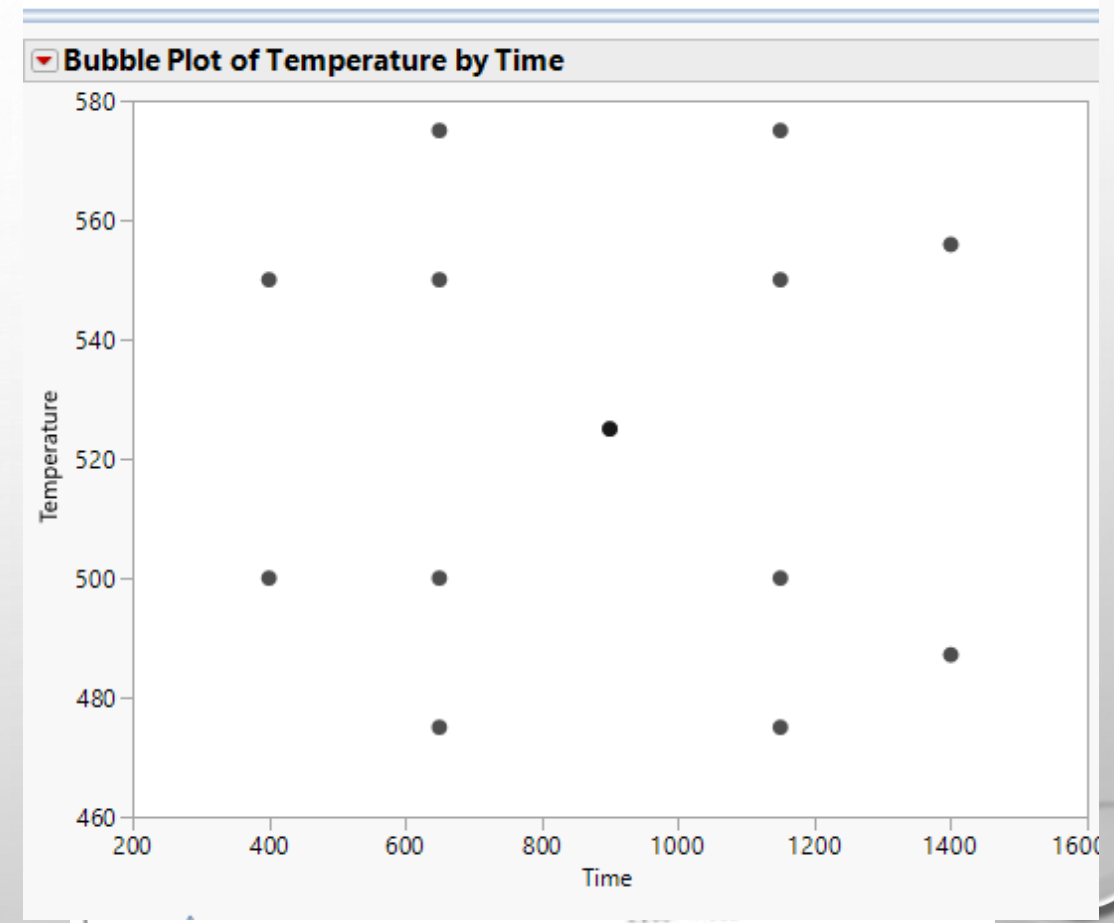
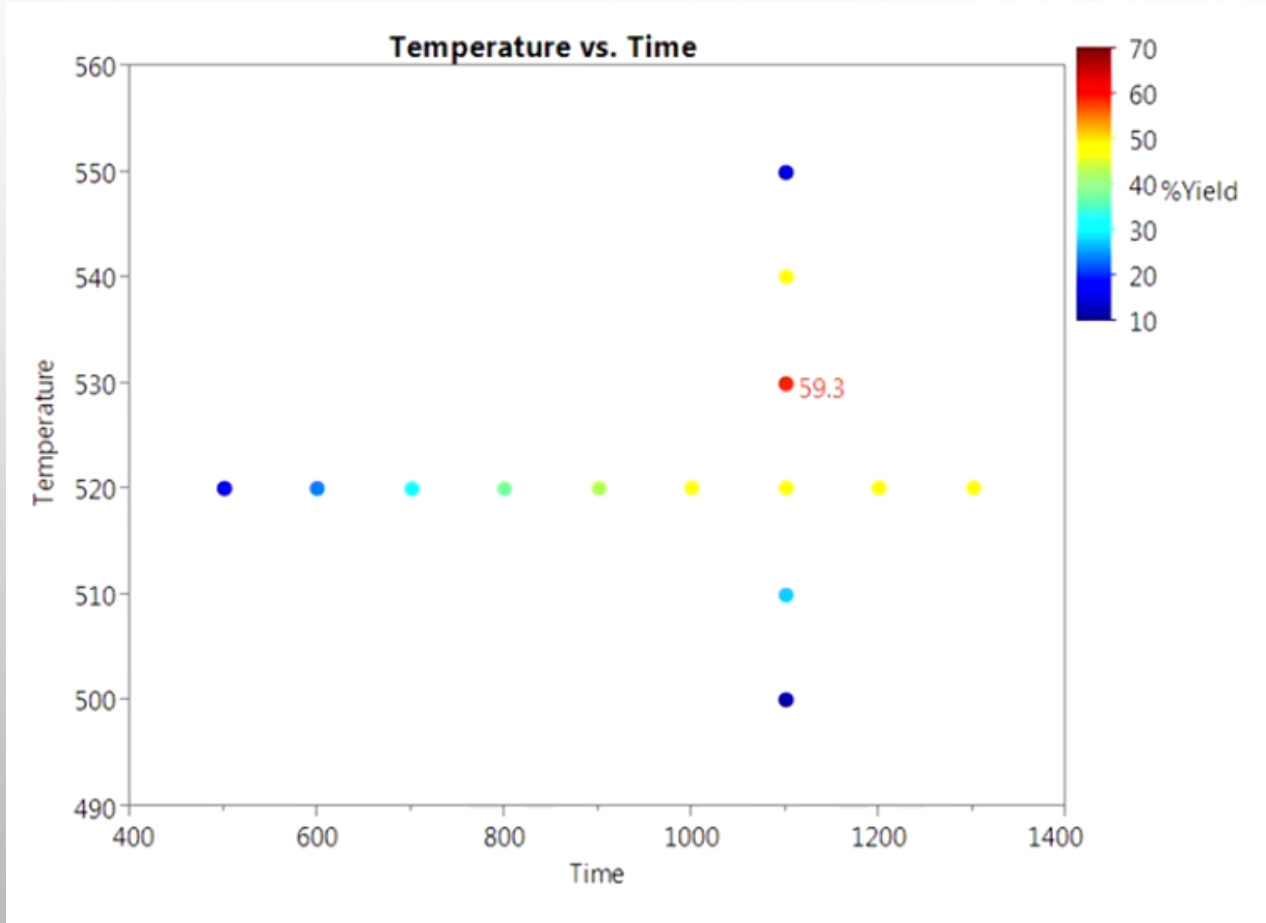
ONE FACTOR AT A TIME VS “DESIGN OF EXPERIMENTS” (DOE)



- How can we improve this and explore the rest of the space?
- We only examined one temperature setting and one time setting thoroughly
- What if we varied temperature and time together?
- “Design of Experiments” (DOE)

• EXAMPLE ADOPTED FROM SAS INSTITUTE, INC.

ONE FACTOR AT A TIME VS “DESIGN OF EXPERIMENTS” (DOE)



- EXAMPLE ADOPTED FROM SAS INSTITUTE, INC.

WHAT IS DESIGN OF EXPERIMENTS (DOE)?

- IT'S NOT SOMETHING NEW
- SIR RONALD FISHER AND CO-WORKERS – WORK IN AGRICULTURE (1920'S)
 - DEVELOPED KEY DESIGN PRINCIPLES
 - HAD A HUGE IMPACT ON YIELD PRODUCTION
- SIMPLIFIED OVER THE NEXT FEW DECADES – UTILIZED IN INDUSTRY



WHAT CAN DOE HELP ME WITH?

- TOO MANY PROBLEMS, TOO LITTLE TIME
- WANT TO GAIN A BETTER UNDERSTANDING OF A CERTAIN PROCESS / SYSTEM
- DEVELOP ROBUST CONDITIONS, OPTIMIZE QUALITY
- MINIMIZE COST, TIME, VARIABILITY
- CAN HELP SOLVE PROBLEMS QUICKLY & EFFICIENTLY
- CAN BE UTILIZED IN A VARIETY OF DIFFERENT AREAS
 - WHAT IS THE BEST WAY TO BREW COFFEE?
 - WHAT IS THE MOST COST EFFECTIVE METHOD FOR MAKING NAAN KEBOBS?
 - WHICH FACTORS ATTRACT KHUDDAM TO THE MOSQUE THE MOST?



LEARN MORE ABOUT DOE

- GOOGLE
 - YOUTUBE VIDEOS
 - **SOFTWARE:** JMP BY SAS, INC
 - ALSO HAS LOTS OF WEBINARS AND EDUCATIONAL VIDEOS
 - OPTIONS FOR ACADEMICS
- 

FRIDAY SERMON FEBRUARY 6TH, 2015

Our beloved Hadhur (ayyaduahu-Allahu-Ta'aalaa bi-nasri-hil-'Azeez) said:

“Hazrat Musleh Maood (radiy-Allahu ‘anhu) says that working at a fast pace can make a great change in stature of a person and then he said that the children should be taught to think and work fast. But he cautioned by fast is not meant doing things hastily and without due care. But to do things quickly after and with due thought. One who makes haste without thought is a satan. But one who works fast after due thought and care is a soldier of Allah, the Exalted.”